The Protection of Tomatoes, Egg Plants, and Peppers, 1979 - April 1991

Citations from AGRICOLA Concerning Diseases and Other Environmental Considerations

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FOREWORD

This is the 42nd volume in a series of commodity-oriented environmental bibliographies resulting from a memorandum of understanding between the U.S. Department of Agriculture, National Agricultural Library (USDA-NAL), and the U.S. Environmental Protection Agency, Office of Pesticide Programs (EPA-OPP).

This close working relationship between the two agencies will produce a series of bibliographies which will be useful to EPA in the regulation of pesticides, as well as to any researcher in the field of plant or commodity protection. The broad scope of information contained in this series will benefit USDA, EPA, and the agricultural community as a whole.

The sources referenced in these bibliographies include the majority of the latest available information from U.S. publications involving commodity protection throughout the growing and processing stages for each agricultural commodity.

We welcome the opportunity to join this cooperative effort between USDA and EPA in support of the national agricultural community.

JOSEPH H. HOWARD, Director
National Agricultural Library

DOUGLAS D. CAMPT, Director
Office of Pesticide Programs

INTRODUCTION

The citations in this bibliography, The Protection of Tomatoes, Egg Plants, and Peppers, are selected from the AGRICOLA database concerning diseases and other environmental considerations from January 1979 to April 1991.

This is the 42nd volume in a series of commodity-oriented listings of citations from AGRICOLA jointly sponsored by the U.S. Department of Agriculture, National Agricultural Library (USDA-NAL), and the U.S. Environmental Protection Agency, Office of Pesticide Programs (EPA-OPP). Additional volumes issued recently include The Protection of Tropical and Subtropical Fruits, The Protection of Small Grains, The Protection of Cucurbits, The Protection of Minor Vegetable Crops, The Protection of Peas, Beans, and Lentils, and The Protection of Forestry. The other 1991 volumes will cover The Protection of Lawn and Turf Grasses, The Protection of Stored Grains, The Protection of Nut Crops, and The Protection of Peanuts.

Entries in the bibliography are subdivided into a series of section headings used in the contents of the Bibliography of Agriculture. Each item appears under every section heading assigned to the cited document. A personal author index and a site index to plants are included with each volume.

The U.S. Environmental Protection Agency contact for this project is Richard B. Peacock, Office of Pesticides and Toxic Substances.

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Errata
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1190,1422,1432

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spices. Critical considerations are given to the processing and production of various forms, processed seasonings, and concentrated oleoresins. These spices vary from chili to paprika and bell peppers. Botanical classification specifics and identification characteristics are discussed. Attention also is given to cultivation in India and other countries, primary processing techniques, crop improvements and breeding, physical structure, and chemical and nutrient composition. Microbiological and insect control and packaging and storage integrity are discussed. (wz). CRC critical reviews in food science and nutrition. 1985. v. 22 (2). p. 109-176. ill., charts. Includes 211 references. (NAL Call No.: DNAL TP368.C7).

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Duration of CO2 enrichment influences growth, yield, and gas exchange of two tomato species.
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The effect of cytogen, a bioregulator, on fecundity and yields of curcurbits, peppers, and tomatoes.
Mayeux, J.V.PPGGD. Beach, R.; Illum, V.L. Lake Alfred : The Society. Proceedings annual meeting - Plant Growth Regulator Society of America. 1983. 1983. (10th). p. 319-323. ill. (NAL Call No.: SB128.P5).

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Effect of daminozide and ethephon on transplant quality, plant growth and development, and yield of processing tomatoes.
Taha, A.A. Kretchman, D.W.; Jaworski, C.A. Alexandria, Va., The Society. Journal of the American Society for Horticultural Science. Sept 1980. v. 105 (5). p. 705-709. ill. 12 ref. (NAL Call No.: 81 SO12).

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Cotter, D. J. Hilty, Judith Ann, 1947-. Las Cruces, N.M. : New Mexico State University, Agricultural Experiment Station, 1979. Caption title. 4 p. ; 28 cm. Bibliography: p. 4. (NAL

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AAREEZ. Gent, M.P.N. New York, N.Y. : Springer. Tomato plants were grown in a greenhouse in the northeast U.S. at a mean temperature of 17 degrees celsius. Early yield and fruit size were compared for plants grown under a 3 or a 9 degrees celsius day-night temperature variation. Plants were grown in ambient or in carbon dioxide enriched air and in plantings that produced ripe fruit in winter and spring. The 9 degrees celsius diurnal temperature variation accelerated fruit growth and ripening, resulting in greater early yield. It did not inhibit fruit set or result in a greater percentage of misshapen fruit. In spring, carbon dioxide enrichment increased fruit growth more under the 9 than 3 degrees celsius diurnal temperature variation. Under the 9 degrees celsius diurnal temperature variation, carbon dioxide enrichment prevented the reduction in fruit weight seen under ambient carbon dioxide. The weight per fruit and percentage of large fruit were lower in spring than winter, and due to their effect on fruit size, the growth regimens affected the yield of high quality fruit more in spring than in winter. Applied agricultural research. 1988. v. 3 (5). p. 257-263. Includes references. (NAL Call No.: DNAL S539.5.A77).

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The effect of ethylene and abscisic acid on symptom expression of bacterial ring rot in eggplant and potato.
APOJA. Kurowski, C.J. Gudmestad, N.C. Orono, Me. : Potato Association of America. American potato journal. July 1990. v. 67 (7). p. 443-459. Includes references. (NAL Call No.: DNAL 75.8 P842).

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JAUPA. Rivera, E. Iriarry, H. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Jan 1984. v. 68 (1). p. 1-4. (NAL Call No.: DNAL 8 P832J).

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Effect of flat cell size, transplant age, and production site on growth and yield of pepper transplants.
HJHSA. Weston, L.A. Alexandria, Va. : American Society for Horticultural Science. HortScience. Aug 1988. v. 23 (4). p. 709-711. Includes references. (NAL Call No.: DNAL SB1.H6).

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Effect of gibberellic acid and seed rates on pepper seed germination in aerated water columns (Capsicum annuum).
Sosa-Coronel, J. Motes, J.E. Alexandria, Va., The Society. Journal of the American Society for Horticultural Science. Mar 1982. v. 107 (2). p. 290-295. ill. Includes 14 ref. (NAL Call No.: 81 S012).

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Effect of growth regulators on the height of ornamental eggplant, Solanum melongena L.
Sanderson, K.C. Martin, W.C. Jr.; Reed, R.B. New Brunswick, N.J. : Plant Growth Regulator Society of America. Quarterly - PGRSA. Jan/Mar 1989. v. 17 (1). p. 10-14. Includes references. (NAL Call No.: DNAL QK745.P55).

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Effect of herbicides applied to corn on subsequent tomato, pepper, and cucumer crops (Florida).
Everett, P.H. Kalmbacher, R.S.; Chambliss, C.; Teem, D.H. n.p., The Society. Proceedings - Soil and Crop Science Society of Florida. 1980. v. 39. p. 122-125. 12 ref. (NAL Call No.: 56.9 S032).

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Effect of high sulfate irrigation waters on soil salinity and yields.
AGJOAT. Papadopoulos, I. Madison, Wis. : American Society of Agronomy. Agronomy journal. May/June 1986. v. 78 (3). p. 429-432. Includes references. (NAL Call No.: DNAL 4 AM34P).

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Effect of high temperature stress on yield and quality of whole-pack processing tomatoes.
Horn, R.S. Gonzalez, A.R. Fayetteville, Ark., The Station. Arkansas farm research - Arkansas Agricultural Experiment Station. May/June 1981. v. 30 (3). p. 14. ill. (NAL Call No.: 100 AR42F).

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Effect of manual defoliation on unstaked fresh-market tomato yield and quality /Jozef Keularts, Van Waddill and Ken Pohronezny.
Keularts, Jozef Leo Willem, 1945-. Waddill, Van.; Pohronezny, Kenneth Louis, 1946-. Gainesville, Fla. : Agricultural Experiment Stations, Institute of Food and Agricultural Sciences, University of Florida, 1985. Cover title: Effect of manual defoliation on tomato yield and quality.~ "June 1985.". 41 p. : ill. ; 23 cm. Bibliography: p. 39-41. (NAL Call No.: DNAL 100 F66S (1) no.847).

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Effect of organic amendments, nematicides and solar heating on root-knot nematodes infecting eggplant.
Stephan, Z.A. Michbas, A.H.; Shakir, I. Raleigh, N.C. : Crop Nematode Research & Control Project . International nematology network newsletter. Mar 1989. v. 6 (1). p. 34-35. Includes references. (NAL Call No.: DNAL SB998.N45I5).

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The effect of photoperiodic pretreatments on symptom development in plants exposed to ozone (Tomatoes, Lycopersicon esculentum, Pisum sativum, air pollution, pollutants).
Godish, T. Indianapolis : The Academy. Proceedings - Indiana Academy of Science. 1980. v. 89. p. 268-271. 7 ref. (NAL Call No.: 500 IN2).

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Bhella, H.S. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1986. (19th). p. 80-86. Includes references. (NAL Call No.: DNAL 309.9 N216).

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Taber, H.G. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1983. (17th). p. 37-45. Includes references. (NAL Call No.: DNAL 309.9 N216).

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Effect of row covers on microclimate and yield of tomato and cucumber.
Wolfe, D.W. Wyland, J.; Albright, L.D.; Novak, S. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1986. (19th). p. 35-50. Includes references. (NAL Call No.: DNAL 309.9 N216).

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Effect of season and growth regulators on flowering, fruit-set and development of the tomato.
Perez-Zapata, M. Ramirez Oliveras, G. Rio Piedras, The Station. Abstract: Two tomato varieties, Floralou and Marglobe, were treated with spray applications of N-m-tolylphthalamic acid at 0, 100, 200, 300 p/m, and b-napthoxyacetic acid at 0, 15, 25 and 35 p/m starting at anthesis for six consecutive weeks, totalling six applications. Flowers and quiescent fruits were more abundant during the summer but yield was lower. Growth regulators affected neither flowering nor number of quiescent fruits, but depressed yields. Winter was the was the best yielding season, although it was the poorest in flowering.
B-napthoxyacetic acid resulted in increased fruit size at the two higher concentrations. Seedless fruits of good quality were produced at the higher concentrations during summer and autumn. Results indicate that flower abscission is not a limiting factor under the conditions of this research. The Journal of agriculture of the University of Puerto Rico - Puerto Rico, Agricultural Experiment Station. Oct 1980. v. 64 (4). p. 460-473. 35 ref. (NAL Call No.: 8 P832J).

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Effect of seed treatment and planting method on tabasco pepper.
JOSHB. Sundstrom, F.J. Reader, R.B.; Edwards, R.L. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. July 1987. v. 112 (4). p. 641-644. Includes references. (NAL Call No.: DNAL 81 SO12).

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Effect of soaking seed of some vegetables before sowing.
AGJOAT. Knott, J.E. Madison, Wis. : American Society of Agronomy. Soaking seed of beet, cabbage and tomato in shallow distilled water for 24 hours shows no definite influence on the later growth and yield, if the plants from the soaked and dry seed appear above ground at the same time. Simultaneous germination is essential before conclusions can be drawn from treatments applied to the seed which cause a difference in time of germination. The stimulating advantage claimed for soaking may be due simply to the initial headstart of the soaked seed at a time when the plant is at its greatest efficiency. Soaking for twenty-four hours affected the length of the germination period differently with the various crops. Agronomy journal. Jan 1925. v. 17 (1). p. 49-54. (NAL Call No.: DNAL 4 AM34P).

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Effect of soil management practices on yield and foliar nutrient concentration of dry beans, carrots, and tomatoes.
Eggert, F.P. New York : Praeger, 1983. Environmentally sound agriculture : selected papers, 4th conference, International Federation of Organic Agriculture Movements, Cambridge, Mass., August 18-20, 1982 / edited by William Lockeretz. p. 247-259. Includes references. (NAL Call No.: DNAL S604.5.E58).

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Effect of supplementary lighting on transplant growth and yield of greenhouse tomato.
HJHSA. Boivin, C. Gosselin, A.; Trudel, M.J. Alexandria, Va. : American Society for Horticultural Science. HortScience. Dec 1987. v. 22 (6). p. 1266-1268. Includes references. (NAL Call No.: DNAL SB1.H6).

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Effect of titanium on the activity of lipoxygenase.
JPNUDS. Daood, H.G. Biacs, P.; Feher, M.; Hajdu, F.; Pais, I. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. May 1988. v. 11 (5). p. 505-516. Includes references. (NAL Call No.: DNAL QK867.J67).

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Effect of transplant age on earliness, total yield and fruit weight of tomato.
Cooper, P.E. Morelock, T.E. Fayetteville, Ark. : The Station. Arkansas farm research - Arkansas Agricultural Experiment Station. Sept/Oct 1983. v. 32 (5). p. 6. (NAL Call No.: 100 AR42F).

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The effect of trickler line spacing on yield of tomatoes (Lycopersicum esculentum Mill.) (Irrigation).
Tsipori, Y. Shimshi, D. Madison, Wis., The Society. Journal.Soil Science Society of America. Nov/Dec 1979. v. 43 (6). p. 1225-1228. ill. 4 ref. (NAL Call No.: 56.9 SO3).

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Effect of water treatment sludge on growth and elemental composition of tomato (Lycopersicon esculentum) shoots.
CSOSA2. Elliott, H.A. Singer, L.M. New York, N.Y. : Marcel Dekker. Communications in soil science and plant analysis. Feb 1988. v. 19 (3). p. 345-354. Includes references. (NAL Call No.: DNAL S590.C63).

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Effects of aluminum-painted and black polyethylene mulches on bell pepper, Capsicum annuum L. (Yields).
Porter, W.C.HJHSA. Etzel, W.W. Alexandria : American Society for Horticultural Science. HortScience. Dec 1982. v. 17 (6). p. 942-943. 7 ref. (NAL Call No.: SB1.H6).

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Effects of applied phosphorus on seedling growth and yields of tomatoes and chile.
Cotter, D.J. Las Cruces, N.M. : The Station. Research report - New Mexico, Agricultural Experiment Station. Sept 1983. Sept 1983. (515). 10 p. Includes references. (NAL Call No.: 100 N465R).

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Effects of black plastic mulch and row covers on the growth and performance of eggplant intercropped with mustard greens.
Brown, J.E. Lewis, G.A.; Carden, E.L.; McDaniel, R.N. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1986. (19th). p. 384-395. Includes references. (NAL Call No.: DNAL 309.9 N216).

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Effects of calcium and magnesium lime sources on yield, fruit quality, and elemental uptake of tomato (Lycopersicon esculentum, plant nutrition).
Mullins, C.A.JOSHB. Wolt, J.D. Alexandria : The Society. Journal of the American Society for Horticultural Science. Sept 1983. v. 108 (5). p. 850-854. ill. Includes references. (NAL Call No.: 81 SO12).

0087

Effects of certain cultural practices on the production of processing peppers in Delaware /Michael D. Orzolek.
Orzolek, M. D. Newark, Del. : Agricultural Experiment Station, University of Delaware, 1981. 22 p. ; 28 cm. Bibliography: p. 21-22. (NAL Call No.: DNAL 100 D37S (1) no.434).

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Effects of ethephon and daminozide on floral abscission and yield of single-harvest tomatoes (Cultivars, Mesilla valley, New Mexico).
Cotter, D.J. Locke, M.C. Las Cruces : The Station. Research report - New Mexico, Agricultural Experiment Station. June 1981. June 1981. (446). 8 p. 22 ref. (NAL Call No.: 100 N465R).

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Effects of ethephon on transplanted chile in the Espanola Valley.
NEXRA. Matta, F.B. Las Cruces, N.M. : The Station. Research report - New Mexico University, College of Agriculture and Home Economics, Agricultural Experiment Station. May 1984. (539). 6 p. Includes references. (NAL Call No.: DNAL 100 N465R).

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Effects of growth regulators on ripening and abscission of pimiento and paprika peppers.
Batal, K.M.HJHSA. Granberry, D.M. Alexandria : American Society for Horticultural Science. HortScience. Dec 1982. v. 17 (6). p. 944-946. ill. 9 ref. (NAL Call No.: SB1.H6).

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Effects of hydrogel incorporation in peat-lite on tomato growth and water relations (Pot study).
Pill, W.G. Jacono, C.C. New York, N.Y. : Marcel Dekker. Communications in soil science and plant analysis. 1982. v. 15 (7). p. 799-810. Includes 10 references. (NAL Call No.: S590.C63).

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Effects of lime type on yields and leaf concentrations of several vegetable crops as related to soil test levels.
JOSHB. Smith, C.B. Demchak, K.T.; Ferretti, P.A. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Nov 1986. v. 111 (6). p. 837-840. Includes references. (NAL Call No.: DNAL 81 SO12).

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Effects of nitrogen and phosphorus fertilizer on yield and leaf content of trickle irrigated chile peppers (New Mexico).
Panpruik, P. McCaslin, B.D.; Wierenga, P.J. Las Cruces : The Station. Research report - New Mexico, Agricultural Experiment Station. June 1982. June 1982. (480). 5 p. 17 ref. (NAL Call No.: 100 N465R).

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Effects of no tillage and various tillage methods on yields of maize, field beans and pepper grown on a mollisol in southern Puerto Rico.
JAUPA. Lugo-Mercado, H.M. Badillo-Feliciano, J.; Ortiz-Alvarado, F.H. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Oct 1984. v. 68 (4). p. 349-354. Includes 15 references. (NAL Call No.: DNAL 8 P832J).

0095

Effects of osmoconditioning and fluid drilling of tomato seed on emergence rate and final yield.
Wolfe, D.W.HJHSA. Sims, W.L. Alexandria : American Society for Horticultural Science. HortScience. Dec 1982. v. 17 (6). p. 936-937. ill. 10 ref. (NAL Call No.: SB1.H6).

0096

Effects of planting densities, irrigation, and hornworm larvae on yields in experimental intercrops of tomatoes and cucumbers.
JOSHB. Schultz, B. McGuinness, H.; Horwith, B.; Vandermeer, J.; Phillips, C.; Perfecto, I.; Rosset, P.; Ambrose, R.; Hansen, M. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Sept 1987. v. 112 (5). p. 747-755. Includes references. (NAL Call No.: DNAL 81 SO12).

0097

Effects of plastic mulch types on crop performance of drip irrigated winter and summer peppers.
JAUPA. Goyal, M.R. Guadalupe Luna, R.; Rivera, L.E.; Hernandez, E.R. de. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. July 1984. v. 68 (3). p. 297-305. Includes 11 references. (NAL Call No.: DNAL 8 P832J).

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Effects of preplant phosphorus fertilization rate and of nitrate and ammonium liquid feeds on tomato grown in peat--vermiculite (Soilless media).
Gibson, C.J.JDSHB. Pill, W.G. Alexandria : The Society. Journal of the American Society for Horticultural Science. Nov 1983. v. 108 (6). p. 1007-1011. ill. Includes references. (NAL Call No.: 81 SD12).

0099

Effects of soil water regime and nitrogen form on blossom-end rot, yield, water relations, and elemental composition of tomato.
Pill, W.G. Lambeth, V.N. Alexandria, Va., The Society. Journal of the American Society for Horticultural Science. Sept 1980. v. 105 (5). p. 730-734. 29 ref. (NAL Call No.: 81 SD12).

0100

Effects of water application rates, plastic-mulch, and staking on size arrangements of mature green tomatoes under drip irrigation.
Guadalupe-Luna, R.JAUPA. Goyal, M.R.; Cintron, M.; Rivera, L.E.; Prieto de Lopez, M. del. Rio Piedras : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. July 1983. v. 67 (3). p. 293-302. ill. (NAL Call No.: 8 P832J).

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Efficacy of methyl bromide-chloropicrin and ethylene dibromide-chloropicrin mixtures for control of nematodes (Paratrichodorus (N.) christiei, Meloidogyne incongnita) and Verticillium wilt of tomato (Verticillium albo-atrum).
Dverman, A.J. Jones, J.P. s.l., The Society. Proceedings of the ... annual meeting of the Florida State Horticultural Society. 1980 (pub 1981). v. 93. p. 248-250. 20 ref. (NAL Call No.: 81 F66).

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Eggplant and tomato: a study on the effects of transplant root volume on yield.
OARCB. Gorski, S.F. Wertz, M.K. Wooster, Dhio : The Center. Research circular - Dhio Agricultural Research and Development Center. Sept 1985. (288). p. 1-3. Includes references. (NAL Call No.: DNAL 100 DH3R).

0103

Eggplant (Solanum melongena L.) transplants and exudates from roots of seven weeds.
JAUPA. Almodovar-Vega, L. Guzman-Perez, C.D.; Semidey-Laracuente, N. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. July 1988. v. 72 (3). p. 495-497. ill. Includes references. (NAL Call No.: DNAL 8 P832J).

0104

Emergence, growth, and freezing tolerance of tomato seedlings grown from uniconazole-treated seed.
HJHSA. Davis, T.D. Ells, J.E.; Walser, R.H. Alexandria, Va. : American Society for Horticultural Science. HortScience. Mar 1990. v. 25 (3). p. 312-313. Includes references. (NAL Call No.: DNAL SB1.H6).

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Energy conservation and environmental control.
Roberts, W.J. Honolulu, Hawaii, USA : International Center for Special Studies, c1985. Hydroponics worldwide : state of the art in soilless crop production / Adam J. Savage, editor. p. 21-30. ill. Includes references. (NAL Call No.: DNAL SB126.5.H94).

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Engineering economy of controlled environment for greenhouse production.
Ting, K.C. Dijkstra, J.; Fang, W.; Giniger, M. St. Joseph, Mich. : The Society. American Society of Agricultural Engineers (Microfiche collection). Paper presented at the 1987 Winter Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Drder Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Drder Dept. at (616) 429-0300 for information and prices. 1987. (fiche no. 87-4546). 22 p. Includes references. (NAL Call No.: DNAL FICHE S-72).

0107

Evaluation of herbicides for use between plastic mulch in cucurbit and solanaceous crop production.
Bonanno, A.R. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1986. (19th). p. 339-347. Includes references. (NAL Call No.: DNAL 309.9 N216).

0108

Evaluation of Lycospersicon sp. accessions for resistance to bacterial spot (Xanthomonas campestris pv. vesicatoria (Doidge) dye) /J.W. Scott and J.B. Jones.
Scott, J. W. 1948-. Jones, J. B._1951-. Gainesville, Fla. : Agricultural Experiment Stations, Institute of Food and Agricultural Sciences, University of Florida, 1985. "August 1985.". 16 p. ; 23 cm. Bibliography: p. 15-16. (NAL Call No.: DNAL 100 F66S (1) no.855).

0109

Factors affecting harvest date of tomato grown under floating row cover.
AAREEZ. Gent, M.P.N. New York, N.Y. : Springer. Floating row covers trap the heat from solar radiation, warm covered plants and should accelerate plant development. However, in three years of field trials in Connecticut USA (Latitude 42N), the mid-harvest date for tomato (Lycopersicon esculentum Mill.) planted in the spring and grown under spun bonded polypropylene floating row cover was rarely earlier than for tomato grown in the open. When planted on 23 May, the mid-harvest date was delayed up to 9 days by covering plants for one month after transplant. The mid-harvest date was also delayed when planted on 20 April and covered for two months. Under row cover, daily maximum plant temperatures ranged from 3 to 10 degrees C (5 to 18 degrees F) warmer than in the open, depending primarily on irradiance. In June, mean daytime temperatures under row cover were often above 26 degrees C (78 degrees F), the optimum for growth and development of tomato under controlled conditions. Although growing degree days, the accumulation of temperature above 10 degrees C (50 degrees F), predicted the variation in time from transplant to mid-harvest for plants grown in the open, only physiological days, which assumed development slows at mean daytime temperatures above 26 degrees C, predicted the slow ripening of tomato grown under row cover in June. Applied agricultural research. Spring 1990. v. 5 (2). p. 112-118. Includes references. (NAL Call No.: DNAL S539.5.A77).

0110

Field emergence of tomato, carrot, and onion seeds primed in an aerated salt solution.
JOSHB. Haigh, A.M. Barlow, E.W.R.; Milthorpe, F.L.; Sinclair, P.J. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Sept 1986. v. 111 (5). p. 660-664. Includes references. (NAL Call No.: DNAL 81 S012).

0111

Fresh market tomato cultivar trial, early planting.
Price, H.C. Grajuaskis, J.J.; Baughan, R.A. West Lafayette, Indiana : The Station. Station bulletin - Purdue University, Agricultural Experiment Station. In the series analytic: Midwestern vegetable variety trial report for 1987 / compiled by J. E. Simon, D. D. Daniels and R. G. Snyder.~ Includes statistical data. Dec 1987. (528). p. 101-103. (NAL Call No.: DNAL HD1775.I6I5).

0112

Further experiments on the effects of mulches on crop yields and soil conditions (Lettuce, beets, tomatoes).
Ervin, S. Woods Hole, Mass., New Alchemy Institute. The Journal of the new alchemists. 1980. 1980. (6). p. 53-56. ill. 2 ref. (NAL Call No.: GF1.J6).

0113

Grass weed management in transplanted eggplant.
JAUPA. Semiday, N. Almodovar, L.; Caraballo, E. Rio Piedras, R.R. : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Apr 1990. v. 74 (2). p. 133-138. Includes references. (NAL Call No.: DNAL 8 P832J).

0114

Grower's guide for vegetable crops: peppers (Varieties, insect and disease control).
Bienz, D.R. Thornton, R.E. Pullman, Wash., The Service. EM - Washington State University, Cooperative Extension Service. Nov 1980. Nov 1980. (2946). 5 p. (NAL Call No.: 275.29 W27MI).

0115

Growing short sturdy tomato seedlings to facilitate automated handling.
AAREEZ. Batal, K.M. Smittle, D.A.; Brewer, H.L.; Jones, P.; Jones, J.W.; Allen, L.H. Jr. New York, N.Y. : Springer. Vegetable seedlings in automated growing and transplanting systems need to be short and sturdy to facilitate

handling by machines. Ambient CO2 levels, temperature, and spacing were varied to determine their effects on growth of tomato seedlings during the first three weeks after seeding. Temperature and spacing influenced plant growth and physical characteristics more than the CO2 enrichment. Seedling heights and fresh weight were reduced more than 50% by changing day/night temperatures from 27 degrees/20 degrees C (81 degrees/68 degrees F) to 20 degrees/13 degrees C (68 degrees/55 degrees F). Doubling the space per plant reduced both shoot length and fresh weight. Elevating the CO2 level from 330 to 660 microliter/L (ppm) slightly increased plant heights. However, greater than 660 ppm CO2 increased leaf number, percent dry matter, sugar and starch, but decreased chlorophyll concentration. A combination of CO2 enrichment, 20/13 degrees day/night temperatures, and proper spacing under full sunlight appears to be an efficient method of producing good quality seedlings. Vegetable transplants grown in this way would be acceptable for use in proposed automatic handling systems. Applied agricultural research. Winter 1990. v. 5 (1). p. 1-8. ill. Includes references. (NAL Call No.: DNAL S539.5.A77).

0116

Growing staked tomatoes in Arkansas (Varieties, bacterial disease control).
Montgomery, F.W. Little Rock, Ark. : The Service. Leaflet EL - Arkansas University, Cooperative Extension Service. Mar 1984. Mar 1984. (148,rev.). 11 p. ill. (NAL Call No.: 275.29 AR4LE).

0117

Growth of genetically altered Pseudomonas solanacearum in soil and rhizosphere.
SSSJD4. Hartel, P.G. Williamson, J.W.; Schell, M.A. Madison, Wis. : The Society. The extent to which a bacterium can grow in soil and in the rhizosphere is influenced by the presence or absence of various genes. The effect of genetic alteration of the egl gene, encoding a beta-1,4-endoglucanase, on the growth of Pseudomonas solanacearum E.F. Smith (the causal agent of bacterial wilt) in soil and in the rhizosphere of tomato (Lycopersicon esculentum Mill.), common purslane (Portulaca oleracea L.), and pearl millet (Pennisetum glaucum (L.) R. Br.) was determined. Endoglucanase production by P. solanacearum was either inactivated by transposon (Tn5) insertion mutagenesis or enhanced twofold by increasing the egl copy number with a recombinant plasmid (pHE3). In a test of the stability of the genetic alterations in two different soils, the transposon in the chromosome was detectable for > 120 d, but the recombinant plasmid was apparently lost after 14 d in one soil and after 120 d in the other. In comparison to the wild-type strain, the generation times of the strains with the transposon and the recombinant plasmid increased 16 and 25%, respectively, in one soil solution and 35 and 53% in the other soil solution; this correlated well with the ability of the strains to grow in the same freshly moistened soils. Under conditions of soil inoculation, the genetically altered strains did not wilt tomato seedings significantly faster or slower than the wild-type strain. Although all of the P. solanacearum strains, including the wild type, grew in the rhizosphere of gnotobiotically grown tomato plants, none of the strains grew in the rhizosphere of tomato, common purslane, or pearl millet under nonsterile conditions. The data suggest that genetic alterations slow the growth of P. solancearum in freshly moistened soil, and that endoglucanase is of minor importance to the growth of P. solanacearum under these conditions. Soil Science Society of America journal. July/Aug 1990. v. 54 (4). p. 1021-1025. Includes references. (NAL Call No.: DNAL 56.9 SO3).

0118

Growth regulator controls tomato transplant height.
CAGRA. Hickman, G.W. Perry, E.J.; Mullen, R.J.; Smith, R. Oakland, Calif. : Division of Agriculture and Natural Resources, University of California. California agriculture. Sept/Oct 1989. v. 43 (5). p. 19-20. (NAL Call No.: DNAL 100 C12CAG).

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Herbivore effects on fresh and processing tomato productivity before harvest.
JEENAI. Welter, S.C. Johnson, M.W.; Toscano, N.C.; Perring, T.M.; Varela, L. Lanham, Md. : Entomological Society of America. Effects of various insecticide treatment programs on tomato yield were evaluated from 1982 through 1986. Compared with results of fenvalerate applications, significant reductions in total yield and total fruit number were associated with applications of oxamyl. Significant negative regressions were obtained between percentage infestation by Lepidoptera and total fruit number, total yield, and mean fruit size. Indeterminate fresh-market cultivars produced larger fruit as the total number of fruit decreased. Determinate cultivars did not increased fruit size as total number of fruit decreased. These reductions may result from early-season herbivore effects such as fruit abortion. Implications of economic injury levels for direct pests are discussed. Journal of economic entomology. June 1989. v. 82 (3). p. 935-941. Includes references. (NAL Call No.: DNAL 421 J822).

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JOSHB. Adler, P.R. Wilcox, G.E. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Mar 1987. v. 112 (3). p. 198-201. Includes references. (NAL Call No.: DNAL 81 SO12).

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Geraldson, C.M. s.l., The Society. Proceedings of the ... annual meeting of the Florida State Horticultural Society. 1980 (pub 1981). v. 93. p. 278-279. ill. 5 ref. (NAL Call No.: 81 F66).

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Sultonov, Yu. Muromtsev, G.S. New York, N.Y. : Allerton Press. Soviet agricultural sciences. Translated from: Vsesoiuznaia akademiia sel'skokhizistvennykh nauk, Doklady, p. 5-6. (20 AK1). 1985. (2). p. 5-7. ill. Includes 10 references. (NAL Call No.: DNAL S1.S68).

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TAAEA. Marshall, D.E. Esch, T.A.; Dragt, S.R. St. Joseph, Mich. : The Society. Transactions of the ASAE - American Society of Agricultural Engineers. May/June 1986. v. 29 (3). p. 714-717. Includes references. (NAL Call No.: DNAL 290.9 AM32T).

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Influence of different types of mulches on eggplant production.
HJHSA. Carter, J. Johnson, C. Alexandria, Va. : American Society for Horticultural Science. HortScience. Feb 1988. v. 23 (1). p. 143-145. Includes references. (NAL Call No.: DNAL SB1.H6).

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Influence of dikegulac on the growth of processing tomatoes.
HJHSA. Frost, D.J. Kretchman, D.W. Alexandria, Va. : American Society for Horticultural Science. HortScience. Apr 1987. v. 22 (2). p. 232-234. Includes references. (NAL Call No.: DNAL SB1.H6).

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Influence of frequency and duration of furrow irrigation on the development of Phytophthora root rot and yield in processing tomatoes.
PHYTAJ. Ristaino, J.B. Duniway, J.M.; Marois, J.J. St. Paul, Minn. : American Phytopathological Society. Processing tomatoes grown in field plots with soil either infested or uninfested with Phytophthora parasitica were furrow irrigated for 4-8 hr every 14 days (normal irrigation), for 4-8 hr every 28 days (less frequent irrigation), or with alternating 4-8 hr and 24-hr irrigations every 14 days (prolonged irrigation). Disease developed more rapidly and symptom severity was significantly greater on shoots and roots of plants in infested soil that received prolonged irrigations compared with plants that were irrigated less frequently. Midday leaf water potential was reduced significantly as symptom severity increased and, by 90 days after planting, was correlated negatively with fruit yield at harvest (122 days). Disease significantly reduced fruit yield by 68 or 74%, 34 or 60%, and 20 or 43% as compared with uninoculated controls in prolonged, normal, or less frequent irrigation treatments in 1985 or 1986, respectively. Populations of P. parasitica in soil increased from 6 to 17 colony-forming units per gram (cfu/g) of soil infestation to 67-121 cfu/g of soil at harvest. Results clearly show that variations in the frequency and duration of furrow irrigation can have large effects on the development of Phytophthora root rot and yield loss to root rot in processing tomatoes. Phytopathology. Dec 1988. v. 78 (12,pt.2). p. 1701-1706. Includes references. (NAL Call No.: DNAL 464.8 P56).

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Influence of fumigation on the sowing qualities of vegetable (cucumber, tomato, onion and beet) seeds.
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Influence of glyphosate and paraquat pre-transplant treatments on weed control and peppers yields.
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Insect and weed interactions on bell poeppers (Capsicum annuum).
WETEE9. Frank, J.R. Schwartz, P.H. Jr.; Bourke, J.B. Champaign, Ill. : The Society. Weed technology : a journal of the Weed Science Society of America. Oct 1988. v. 2 (4). p. 423-428. Includes references. (NAL Call No.: DNAL SB610.W39).

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JAUPA. Liu, L.C. Antoni-Padilla, M.; Goyal, M.R.; Gonzalez-Ibanez, J. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Oct 1987. v. 71 (4). p. 349-358. Includes references. (NAL Call No.: DNAL 8 P832J).

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Intercropping vegetables with plastic mulch and row tunnels.
Gerber, J.M. Brown, J.E.; Splittstoesser, W.E. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1983. (17th). p. 24-27. Includes references. (NAL Call No.: DNAL 309.9 N216).

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Shalhever, J. Meiri, A.; Heuer, B. Davis : University of California, Davis?, 1981? . A Conference on biosalinity : the problem of salinity in agriculture : a joint conference of Egyptian, Israeli and American scientists, Univ. of California, Davis, September 1-4, 1981 / organized and. p. 54-56. (NAL Call No.: DNAL S619.S24C6).

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Machine harvesting of fresh tomatoes from plastic mulch covered bed.
Shaw, L.N. St. Joseph, Mich. : American Society of Agricultural Engineers, c1984. Fruit, nut, and vegetable harvesting mechanization : proceedings, International Symposium on Fruit ... Mechanization, Oct 5-12, 1983, Volcani Center, Bet Dagan, Israel / Institute of Agricultural Engi. p. 232-239. ill. Includes 7 references. (NAL Call No.: DNAL SB360.3.I5

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Meloidogyne incognita resistance characteristics in tomato genotypes developed for processing.
JONEB. Roberts, P.A. May, D. Raleigh, N.C. : Society of Nematologists. Journal of nematology. July 1986. v. 18 (3). p. 353-359. Includes 15 references. (NAL Call No.: DNAL QL391.N4J62).

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Modeling row cover effects on microclimate and yield. I. Growth response of tomato and cucumber.
JOSHB. Wolfe, D.W. Albright, L.D.; Wyland, J. Alexandria, Va. : The Society. Several polyethylene and fabric row cover materials, and clear and black polyethylene mulch, were evaluated in a 2-year field study. For cucumbers Cucumis sativus (L.) , visible wilting and slowed growth rates of young transplants exposed to cold nights were minimized when grown under row covers that maintained high humidities and higher air and soil temperatures than in the exposed controls. Early cucumber yields were increased 2- to 6-fold by the use of covers. In contrast, tomatoes Lycopersicon esculentum (Mill.) showed no significant early yield increases, but a 63% reduction in early yield in 1985 under a perforated clear polyethylene cover. The frequency and duration of daytime air temperatures exceeding 35C had a negative impact on tomato fruit size, quality, and percentage marketable. For cucumber, the relationship between cumulative degree days (during the covered interval) and biomass, early, and total yields was linear (r2 between 0.70 and 0.82) with positive slope. Tomato yields could not be accurately predicted using this approach, but correlations were improved (for the 1985 data set) by using modified degree-day formulas incorporating a negative high-temperature factor. Journal of the American Society for Horticultural Science. July 1989. v. 114 (4). p. 562-568. Includes references. (NAL Call No.: DNAL 81 SO12).

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HARAA. Brown, D.R. Eakes, D.J.; Behe, B.K. Auburn University, Ala. : The Station. Highlights of agricultural research - Alabama Agricultural Experiment Station. Winter 1990. v. 37 (4). p. 13. (NAL Call No.: DNAL 100 AL1H).

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N and P fertilizers and growth and yield of sweet pepper.
JAUPA. Gonzalez, A. Beale, A. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Apr 1987. v. 71 (2). p. 209-215. Includes references. (NAL Call No.: DNAL 8 P832J).

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Net economic values of eight soil management practices used in stake tomato production.
JOSHB. Estes, E.A. Skroch, W.A.; Konsler, T.R.; Shoemaker, P.B.; Sorensen, K.A. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Nov 1985. v. 110 (6). p. 812-816. Includes 9 references. (NAL Call No.: DNAL 81 SO12).

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New tunnel materials for early vegetable production in New York State.
Kohm, P.C. Wien, H.C. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1983. (17th). p. 31-36. Includes references. (NAL Call No.: DNAL 309.9 N216).

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NF-10 bioactivators enhance photosynthesis, plant growth, yield and quality in commercial crops.
PPGGD. Tenzer, A.I. Lake Alfred, Fla. : The Society. Proceedings annual meeting - Plant Growth Regulator Society of America. 1987. (14th). p. 316-325. Includes references. (NAL Call No.: DNAL SB128.P5).

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Nitrogen fertigation of greenhouse-grown tomato.
CSOSA2. Papadopoulos, I. New York, N.Y. : Marcel Dekker. Communications in soil science and plant analysis. Aug 1987. v. 18 (8). p. 897-907. Includes references. (NAL Call No.: DNAL S590.C63).

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Nitrogen, lime and mulch effect on eggplant production.
Paterson, J.W. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1989. (21st). p. 177-179. (NAL Call No.: DNAL 309.9 N216).

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North Carolina growers pamper peppers (Applying soda/potash and plant protection chemicals).
Edwards, A.V. Willoughby, Ohio : Meister Publishing Company. American vegetable grower. May 1984. v. 32 (5). p. 9. (NAL Call No.: 80 C733).

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Ntrogen fertilizer management practices to enhance seed production by 'Anaheim Chili' peppers.
JOSHB. Payero, J.O. Bhangoo, M.S.; Steiner, J.J. Alexandria, Va. : The Society. The effects of six applied N treatments differing by rates and frequencies of application on the yield and quality of pepper (Capsicum annuum var. annuum L. 'Anaheim Chili') grown for seed was studied. The timing of N applications was based on crop phenology, leaf petiole nitrate-nitrogen concentrations (NO3-N) minimum thresholds, and scheduled calendar applications of fixed amounts of N. Solubilized NH4NO3 was applied through a trickle-irrigation system to ensure uniform and timely applications of N. Rate of mature (green and red) fruit production was unaffected by any treatment except weekly applications of 28 kg.ha-1 of N, which stopped production of mature fruit before all other treatments. Early season floral bud and flower production increased with increasing amounts of N. The two highest total N treatments produced more floral buds and flowers late in the season than the other treatments. Total fruit production was maximized at 240 kg N/ha. Differences in total fruit production due to frequency of N application resulted at the highest total N level. Red fruit production tended to be maximized with total seasonal applied N levels of 240 kg.ha-1 and below, although weekly applications of N reduced production. Total seed yield was a function of red fruit production. Pure-live seed (PLS) production was a function of total seed production. Nitrogen use efficiency (NUE) for red fruit production also decreased with N rates >240 kg.ha-1, but PLS yield and NUE decreased in a near-linear fashion as the amount of total seasonal applied N increased, regardless of application frequency. Season average NO3-N (AVE NO3-N) values >4500 mg.kg-1 had total seed and PLS yields less than those treatments <4000 mg.kg-1. Six-day germination percentage was reduced with weekly N applications of 14 kg.ha-1. Seed mass was reduced with weekly N applications of 28 kg.ha-1. Final germination percent, seedling root length and weight, and field emergence were unaffected by any of the N tre. Journal of the American Society for Horticultural Science. Mar 1990. v. 115 (2). p. 245-251. Includes references. (NAL Call No.: DNAL 81 SO12).

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Overman, A.J. S.l. : The Society. Proceedings - Soil and Crop Science Society of Florida. 1985. v. 44. p. 35-39. ill. Includes 9 references. (NAL Call No.: DNAL 56.9 SO32).

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Osmotic priming of tomato seeds: effects on germination, field emergence, seedling growth, and fruit yield.
JOSHB. Alvarado, A.D. Bradford, K.J.; Hewitt, J.D. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. May 1987. v. 112 (3). p. 427-432. Includes references. (NAL Call No.: DNAL 81 SO12).

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Pecan shells as an organic component of container potting media.
HJHSA. Wang, T.Y. Pokorny, F.A. Alexandria, Va. : American Society for Horticultural Science. HortScience. Feb 1989. v. 24 (1). p. 75-78. Includes references. (NAL Call No.: DNAL SB1.H6).

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Pepper production guide.
Turner, J. Gazaway, W.S.; Patterson, M.; Brown, S.; Williams, J.L. Auburn, Ala. : The Service. Circular ANR - Alabama Cooperative Extension Service, Auburn University. May 1988. (108). 12 p. (NAL Call No.: DNAL S544.3.A2C47).

0157

Pepper transplant response to root volume and nutrition in the nursery.
AGJOAT. Bar-Tal, A. Bar-Yosef, B.; Kafkafi, U. Madison, Wis. : American Society of Agronomy. The use of pepper (Capsicum annuum L.) seedlings for transplanting in the field is common. However, very little is known about the effects of root volume and nutrition in the nursery on transplant performance in the field. The objective of this work was to study the effects of N and P supply to various root volumes on pepper seedling development and growth in the nursery, and fruit yield and harvest earliness in the field. Seedlings were grown in trays packed with a peat/vermiculite mixture, 1:1 (v/v). The plants were irrigated by soaking the trays in the studied nutrient solutions. Phosphorus and N concentrations in

the test solutions were 0.1, 0.5 and 1.0 mM P and 1, 5, 10 and 15 mM N (NH4/NO3=1:1). Root volumes (V) were 5, 15, 35, 65 and 700 cm3 plant-1. Following transplanting, all plants in the field received identical, optimal irrigation and fertilization. Seedling weight increased with increasing root volume and nutrient concentrations in the irrigation water. The optimal solution for pepper seedlings in the studied growth medium was 5 mM N and 0.5 mM P. Nitrogen, P and K contents in tops of optimal seedlings (V = 700 cm3) were 39, 5.5 and 67 g kg-1 dry matter, respectively. Seedling development was retarded when top's content was less than 25 mg N kg-1 and less than 3.1 mg P kg-1. Four weeks after transplanting plant weight in the field increased and fruit ripening was hastened when the top's dry weight at planting time increased from 63 to 285 mg plant-1. Plant relative growth rate and total fruit yield were unaffected by nursery treatments. Agronomy journal. Sept/Oct 1990. v. 82 (5). p. 989-995. Includes references. (NAL Call No.: DNAL 4 AM34P).

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Pest control in commercial tomato production (Weeds, insects and diseases).
Binning, L.K. Wyman, J.A.; Stevenson, W.R. Madison : The Programs. Publication - Cooperative Extension Programs. University of Wisconsin - Extension. Feb 1983. Feb 1983. (2351). 4 p. (NAL Call No.: S544.3.W6W53).

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Photodegradation of paraquat applied to polyethylene mulch film.
HJHSA. Gilreath, J.P. Duranceau, S.J. Alexandria, Va. : American Society for Horticultural Science. HortScience. Oct 1986. v. 21 (5). p. 1145-1146. Includes references. (NAL Call No.: DNAL SB1.H6).

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0161

Plant spatial arrangement and density effects on small- and medium-vined processing tomatoes.
JOSHB. Frost, D.J. Kretchman, D.W. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Jan 1988. v. 113 (1). p. 51-55. ill. Includes references. (NAL Call No.: DNAL 81 SO12).

0162

Plastic mulches and plant growing tunnels and some of their effects on temperature control, water conservation and yields of peppers in Arizona and upstate New York.
Pratt, A.J. Kohm, P.C.; Wien, H.C. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1981. (16th). p. 66-78. ill. Includes references. (NAL Call No.: DNAL 309.9 N216).

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Postharvest color development in nor F1 tomato hybrids as influenced by maturity state at harvest.
Buescher, R.W. Hardy, C.; Tigchelaar, E.C. Alexandria, Va., American Society for Horticultural Science. HortScience. June 1981. v. 16 (3). p. 329-330. ill. 10 ref. (NAL Call No.: SB1.H6).

0164

Postharvest studies with mechanically harvested fresh-market tomatoes.
Fuchs, Y. Barkai-Golan, R.; Aharoni, N. St. Joseph, Mich. : American Society of Agricultural Engineers, c1984. Fruit, nut, and vegetable harvesting mechanization : proceedings, International Symposium on Fruit ... Mechanization, Oct 5-12, 1983, Volcani Center, Bet Dagan, Israel / Institute of Agricultural Engi. p. 408-411. Includes 7 references. (NAL Call No.: DNAL SB360.3.I5 1983).

0165

Preplant broadcast and banded phosphorus effects on growth and yield of long green, mildly pungent chile (Capsicum annum L.) / Donald J. Cotter .
Cotter, D. J. Las Cruces, N.M. : New Mexico State University, Agricultural Experiment Station, 1986. Cover title. 4 p. : ill. ; 28 cm. Bibliography: p. 6. (NAL Call No.: DNAL 100 N465R no.580).

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Preplant seed treatment effects on growth and yield of chile pepper.
HJHSA. McGrady, J.J. Cotter, D.J. Alexandria, Va. : American Society for Horticultural Science. HortScience. June 1987. v. 22 (3). p. 435-437. Includes references. (NAL Call No.: DNAL SB1.H6).

0167

Productivity under shade in Hawaii of five crops grown as vegetables in the tropics.
JOSHB. Wolff, X.Y. Coltman, R.R. Alexandria, Va. : The Society. 'Waimanalo Long' eggplant (Solanum melongena L.), 'Kahala' soybean Glycine max (L.) Merrill , 'Jumbo Virginia' peanut (Arachis hypogea L.) 'Waimanalo Red' sweet potato Ipomea batatas (L.) Lam. , and 'Green Mignonette' semihead lettuce (Lactuca sativa L.) were field-grown in two seasons at Waimanalo, Oahu, Hawaii, in the open sun and with four artificially produced levels of shade (30%, 47%, 63%, and 73%). Yields and vegetative growth of eggplant, soybean, peanut, and sweet potato decreased linearly with increasing shade levels. Compared to unshaded controls, yields of semihead lettuce increased significantly under 30% shade in Fall 1986. During Spring 1987, lettuce yields were reduced only slightly from unshaded levels by increasing shade up to 47%. Leaf areas of index leaves of eggplant, soybean, and lettuce were similar to unshaded controls as shade intensity increased, while leaf dry weight decreased under shade. By comparison, both leaf area and leaf dry weight of peanut index leaves decreased as shade increased. Leaf area and leaf dry weight of sweet potato did not respond to shading. The results indicate that, of the five crops studied, only lettuce can be grown successfully under lightly shaded conditions and still receive enough radiant energy for maximum photosynthesis and yields. Journal of the American Society for Horticultural Science. Jan 1990. v. 115 (1). p. 175-181. Includes references. (NAL Call No.: DNAL 81 SO12).

0168

Protected plants produce red and yellow peppers prolifically.
FOPSA. Gent, M.P.N. New Haven, Conn. : The Station. Frontiers of plant science - Connecticut Agricultural Experiment Station. Spring 1989. v. 41 (2). p. 3-5. (NAL Call No.: DNAL 100 F92).

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Purple reign.
Pleasant, B. Emmaus, Pa. : Rodale Press, Inc. Organic gardening. July/Aug 1989. v. 36 (7). p. 47-50. ill. (NAL Call No.: DNAL S605.5.074).

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Recovery and damage of mechanically harvested peppers.
TAAEA. Marshall, D.E. Esch, T.A. St. Joseph, Mich. : The Society. Transactions of the ASAE - American Society of Agricultural Engineers. Mar/Apr 1986. v. 29 (2). p. 398-401. Includes 16 references. (NAL Call No.: DNAL 290.9 AM32T).

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Recovery and damage of mechanically harvested peppers (Damage versus helix speed).
Marshall, D.E. Esch, T.A. St. Joseph, Mich. : The Society. Paper - American Society of Agricultural Engineers (Microfiche collection). 1984. Paper presented at the 1984 Summer Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. 1984. (fiche no. 84-1070). 1 microfiche : ill. Includes references. (NAL Call No.: FICHE S-72).

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Reflective mulches influence plant survival, production, and insect control in fall tomatoes.
HJHSA. Schalk, J.M. Robbins, M.L.R. Alexandria, Va. : American Society for Horticultural Science. HortScience. Feb 1987. v. 22 (1). p. 30-32. Includes references. (NAL Call No.: DNAL SB1.H6).

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Residual effects of forcing and hardening of tomato, cabbage, and cauliflower plants by M.F. Babb. -.
Babb, M. F. (Myron Francis). Washington, D.C. U.S. Dept. of Agriculture 1940. 35 p. : ill. --. Bibliography: p. 33-34. (NAL Call No.: Fiche S-69 no.760).

0174

Response of tomato and watermelon to row solarization.
AAREEZ. Hartz, T.K. Bogle, C.R. New York, N.Y. : Springer. The effect of soil solarization on the production of fresh market tomato (Lycopersicon esculentum Mill.) and watermelon (Citrullus lanatus (Thund.) Matsum. and Nakai) grown in succession was investigated. Individual soil beds were covered with transparent 40 microns polyethylene film and solarized for seven weeks. Afterwards, the film was either removed or painted and utilized as a mulch. Solarization increased yield of fall grown tomato with the film removed 69% and painted 140%, respectively, when compared to the nonsolarized (control) treatment. Solarization had a significant residual effect on watermelon grown the following spring on stale soil beds, increasing marketable yield 54%, when compared to the nonsolarized treatment. Use of the original solarizing polyethylene as a mulch for the watermelon crop also increased earliness, with a 262% greater yield on mulch, when compared to the control. The increase in preharvest cost of this solarization procedure was approximately 20%. The very large increase in yield of tomato and

watermelon and enhanced earliness of watermelon make this cultural practice very economical. Applied agricultural research. Winter 1989. v. 4 (1). p. 15-18. Includes references. (NAL Call No.: ONAL S539.5.A77).

0175

Response of tomatoes to plant protectors and the effect of floating row covers on radish, cabbage, and sweet corn at Redmond, Oregon in 1986.
Nelson, J.L. Young, M. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1987. v. 20. p. 170-176. Includes references. (NAL Call No.: ONAL 309.9 N216).

0176

Response of vegetables to floating row covers and plant protectors in central Oregon.
OASPA. Nelson, J.L. Brevig, R.; Young, M. Corvallis, Or. : The Station. Special report - Oregon State University, Agricultural Experiment Station. July 1985. (747). p. 82-86. ill. (NAL Call No.: DNAL 100 OR3M).

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Responses of tomato to sodium 2,3-dichloroisobutyrate.
Aung, L.H. Longmont, Colo., The Group. Proceedings - Plant Growth Regulator Working Group.Plant Growth Regulator Working Group. 1979. 1979. (6th). p. 48-52. ill. 9 ref. (NAL Call No.: SB128.P5).

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Restricted root zone volume: influence on growth and development of tomato.
JOSHB. Ruff, M.S. Krizek, O.T.; Mirecki, R.M.; Inouye, O.W. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Sept 1987. v. 112 (5). p. 763-769. ill. Includes references. (NAL Call No.: ONAL 81 SO12).

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Root and air temperature effects on the flowering and yield of tomato (Lycopersicon esculentum, soil heating, hydroponics, energy conservation).
Papadopoulos, A.P.JOSHB. Tiessen, H. Alexandria : The Society. Journal of the American Society for Horticultural Science. Sept 1983. v. 108 (5). p. 805-814. ill. Includes references. (NAL Call No.: 81 SO12).

0180

Root growth and water status of trickle-irrigated cucumber and tomato.
JOSHB. Randall, H.C. Locascio, S.J. Alexandria, Va. : The Society. Two trickle irrigation experiments were conducted during two successive years with cucumber (Cucumis sativus L.) and tomato (Lycopersicon esculentum Mill.) grown on a coarse-textured soil in ground beds in a greenhouse. Several trickle irrigation design characteristics (emitter spacings of 15, 30, and 45 cm and one or two laterals per crop row) and water management variables (2 or 8 liters/hr per emitter water application rates and water quantities equivalent to 0.25- and 0.50-times pan evaporation) were examined for their effect on soil water content, root distribution, and plant water status. Water application rates did not influence root density distributions or plant water status; however, the 8 liters.hr-1 water application rate resulted in higher water content in the top 20 cm of soil than the lower application rate. The higher water quantity resulted in higher soil water content, higher root density, and improved plant water status than with the lower quantity. Mature plants had root systems that were well-adapted to the different soil water distributions. Only the amount of water applied influenced the water status of mature cucumber plants and cucumber fruit yields. Journal of the American Society for Horticultural Science. Nov 1988. v. 113 (6). p. 830-835. Includes references. (NAL Call No.: ONAL 81 SO12).

0181

Salt stress, mechanical stress, or chlormequat chloride effects on morphology and growth recovery of hydroponic tomato transplants.
JOSHB. Adler, P.R. Wilcox, G.E. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Jan 1987. v. 112 (1). p. 22-25. Includes 14 references. (NAL Call No.: ONAL 81 SO12).

0182

Seed priming procedures and the effect of subsequent storage on the germination of fresh market tomato seeds.
Odell, G.B. Cantliffe, D.J. s.l. : The Society. Proceedings of the ... annual meeting of the Florida State Horticulture Society. 1986 (pub. 1987). v. 99. p. 303-306. Includes references. (NAL Call No.: ONAL SB319.2.F6F56).

0183

Sequential sampling plant, yield loss components and economic thresholds for the pepper weevil, Anthonomus eugenii Cano (Coleoptera: Curculionidae).
JAUPA. Segarra-Carmona, A.E. Pantoja, A. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of

agriculture of the University of Puerto Rico. July 1988. v. 72 (3). p. 375-385. Includes references. (NAL Call No.: DNAL 8 P832J).

0184

Solar radiation and artificial lighting of controlled environments with particular emphasis on tomatoes / Craig Bredvold. -.
Bredvold, Craig. (St. Paul) Agricultural Experiment Station, University of Minnesota 1982. vi, 118 p. : ill., charts ; 28 cm. --. Bibliography: p. (87)-90. (NAL Call No.: S1.M52 no.14).

0185

Spent mushroom compost in soilless media and its effects on the yield and quality of transplants (Lettuce, tomatoes, cucumbers, Tagetes patula).
Lohr, V.I. O'Brien, R.G.; Coffey, D.L. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Sept 1984. v. 109 (5). p. 693-697. Includes 23 references. (NAL Call No.: 81 S012).

0186

Spraying and dusting tomatoes (Disease and insect control in home gardens).
Jones, B.F. Johnson, D.R.; McDaniel, M.C.; Hirrel, M. Little Rock : The Service. Leaflet EL - Arkansas University, Cooperative Extension Service. May 1983. May 1983. (217rev.). 12 p. (NAL Call No.: 275.29 AR4LE).

0187

Stand deficiencies and replanting effects on tomato fruit yields and size.
JOSHB. Stoffella, P.J. Maynard, D.N. Alexandria, Va. : The Society. The effects of replanting stand-deficient plots on marketable tomato (Lycopersicon esculentum Mill.) fruit size and yields were investigated at Bradenton, Fla. during the 1986 spring and fall seasons. Treatments consisted of a control (10-plant plot) and plots with 9, 8, and 7 (10%, 20%, and 30%) missing plants. Other plots with the same stand deficiency were replanted to attain a complete stand 2 or 3 weeks and 1, 2, or 3 weeks after initial transplanting in the spring and fall experiments, respectively. Plots with 30% stand reduction produced a lower weight and number of marketable fruit per hectare than control plots in both seasons. In spring, replanting stand-deficient plots did not increase marketable fruit yields relativeto plots not replanted, regardless of the time of replanting or percentage of stand reduction. In fall, under an unfavorable environment due to a late infestation of bacterial spot, replanting plots with 30% stand reduction increased marketable fruit yields over similar plots that were not replanted, when the replanting occurred 1 or 2 weeks after initial transplanting, but not when replanting was delayed 3 weeks. Small, medium, or extra-large marketable fruit weight per hectare were similar in both seasons for plots with 30% stand reduction, whether replanted or not. Mean fruit size (g/fruit) did not differ significantly among treatments in either experiment. These results suggest that replanting improved marketable tomato yields only whenthe level of stand deficiency reached 30% and only in a stressed environment. Journal of the American Society for Horticultural Science. Sept 1988. v. 113 (5). p. 689-693. Includes references. (NAL Call No.: DNAL 81 S012).

0188

Studies on octylphenoxy surfactants. 7. Effects of Triton X-100 on sorption of 2-(1-naphthyl)acetic acid by tomato fruit cuticles.
JAFCAU. Shafer, W.E. Bukovac, M.J. Washington, D.C. : American Chemical Society. Journal of agricultural and food chemistry. Mar/Apr 1989. 37 (2). p. 486-492. Includes references. (NAL Call No.: DNAL 381 J8223).

0189

Tensiometer control and fertigation of micro irrigated tomatoes.
Clark, G.A. Haman, D.Z.; Hanlon, E.A.; Hochmuth, G.J. St. Joseph, Mich. : The Society. American Society of Agricultural Engineers (Microfiche collection). Paper presented at the 1987 Winter Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. 1987. (fiche no. 87-2520). 17 p. Includes references. (NAL Call No.: DNAL FICHE S-72).

0190

Tomato harvester--air sonar for header height control.
Nine, P.L. Thompson, L.J. St. Joseph, Mich. : The Society. Paper - American Society of Agricultural Engineers (Microfiche collection). 1982. Paper presented at the 1982 Summer Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. 1982. (fiche no. 82-1067). 1 microfiche : ill. Includes references. (NAL Call No.: FICHE S-72).

0191

Tomato leaf development and distribution as influenced by leaf removal and decapitation.
HJHSA. Decoteau, D.R. Alexandria, Va. : American Society for Horticultural Science. HortScience. June 1990. v. 25 (6). p. 681-684. Includes references. (NAL Call No.: DNAL SB1.H6).

0192

The tomato pest management program in Manatee and Hillsborough counties, 1978-1980 (Florida).
Schuster, D.J. Montgomery, R.T.; Gibbs, D.L.; Marlowe, G.A. Jr.; Jones, J.P.; Dverman, A.J. s.l., The Society. Proceedings of the ... annual meeting of the Florida State Horticultural Society. 1980 (pub 1981). v. 93. p. 235-239. 11 ref. (NAL Call No.: 81 F66).

0193

Tomato pinworm (Lepidoptera: Gelechiidae) artificial infestation: effect on foliar and fruit injury of ground tomatoes.
JEENAI. Pena, J.E. Pohronezny, K.; Waddill, V.H.; Stimac, J. College Park, Md. : Entomological Society of America. Journal of economic entomology. Aug 1986. v. 79 (4). p. 957-960. Includes references. (NAL Call No.: DNAL 421 J822).

0194

Tomato production and mechanization in Indiana / prepared by extension specialists in the Departments of Agricultural Engineering, Agronomy, Botany and Plant Pathology, Entomology, and Horticulture, Purdue University.
1980. This publication focusses attention on tomato production for mechanical harvests. Weed control, insect control, disease control plus soil preparation for growing tomatoes are covered. Tables and graphs are used. Document available from: Mailing Room, Ag. Administration Bldg., Purdue University, W. Lafayette, Indiana 47907. 34 p. : ill. (NAL Call No.: Not available at NAL.).(NAL Call No.: ID 95).

0195

Tomato production and soil pest control in relation to width of fumigated and mulched bed and soil fumigation rate.
Jaworski, C.A. Phatak, S.C.; Johnson, A.W.; McCarter, S.M. Alexandria, Va., American Society for Horticultural Science. HortScience. Oct 1981. v. 16 (5). p. 667-669. 17 ref. (NAL Call No.: SB1.H6).

0196

Tomato production and weed control in no-tillage versus conventional tillage.
JDSHB. Shelby, P.P. Jr. Coffey, D.L.; Rhodes, G.N. Jr.; Jeffery, L.S. Alexandria, Va. : The Society. Field studies were conducted in 1983 and 1984 to evaluate the feasibility of growing fresh-market tomatoes (Lycopersicon esculentum Mill. 'Floradade') in no-tillage or conventional tillage systems and to evaluate the efficacy of postemergence herbicides under both tillage systems. In 1983, marketable fruit yields in no-tillage were nearly twice those from conventional tillage. In 1984, there were no statistical differences in marketable yields among herbicide treatments or between tillage systems. Yields were higher in 1984 than in 1983, largely due to more favorable growing conditions. In both years, metribuzin provided good broadleaf weed control. In 1983, annual grasses were better controlled in no-tillage with a sequential metribuzin application for fluazifop following metribuzin than with a single metribuzin application. Marketable yields were highest in plots where annual grasses were adequately controlled. Sequential metribuzin applications provided good broadleaf weed control and postemergence grass herbicides each provided excellent annual grass control in 1984. Chemical names used: (+/-)-2- 4- 5-(trifluoromethyl)-2-pyridinyl o-xy phenoxy propanoic acid (fluazifop); 4-amino-6-(1,1-diemthylethyl)-3-(methylthio)-1-,2,4-triazin-5(4H)-one (metribuzin). Journal of the American Society for Horticultural Science. Sept 1988. v. 113 (5). p. 675-678. Includes references. (NAL Call No.: DNAL 81 SD12).

0197

Tomato triumphs.
Poncavage, J. Emmaus, Pa. : Rodale Press, Inc. Drganic gardening. May/June 1990. v. 37 (5). p. 46-49. ill. (NAL Call No.: DNAL S605.5.074).

0198

Tomato yield as influenced by plant protection systems.
HJHSA. Perry, K.B. Sanders, D.C. Alexandria, Va. : American Society for Horticultural Science. HortScience. Apr 1986. v. 21 (2). p. 238-239. Includes references. (NAL Call No.: DNAL SB1.H6).

0199

Tomatoes.
Prashar, Paul. Martin, Dean. 1978. Discusses the basic maintenance of the tomatoe such as, choosing varieties, soil, fertilizing, land preparation, spring care, planting, time, starter solutions, mulching, blossom setting, watering, pest-management, cultivation & harvesting. Document available from: Ag Information Bulletin Room, South Dakota State Univ., Extension Bldg., Brookings, South Dakota

57007. 5 p. : ill. (NAL Call No.: FS 667).

0200

Tomatoes--a review of current research and development on glasshouse environment and fruit quality in the UK.
AAREEZ. Hayman, G. New York, N.Y. : Springer. Recent UK research and development on the effects of light, humidity, temperature, and carbon dioxide enrichment on glasshouse tomatoes are described. Because of the high cost of inputs such as fuel in long-season tomato production in northern Europe, growers need to manipulate the glasshouse environment to give the optimum economic response to the use of inputs. Such a regime needs to seek not only the maximum response to any individual factor but also to achieve a balance between potentially opposing factors. As an example humidity control is normally achieved through the use of ventilation and heat. Not only will the crop response have to be weighed against the increased fuel cost, but increased ventilation will reduce the potential for carbon dioxide enrichment. In practice there is evidence that growers in more favorable light areas or with better light transmitting glasshouses are not achieving maximum crop production because of an over-emphasis on humidity control in the spring. Modern computers bring the potential for economic optimisation of the environment. Within the experimental program, detailed assessments of quality factors have been made. These have covered a range of visual aspects, compositional factors, and product life. The potential for development of a premium tomato of superior composition and individual appearance is proposed. Applied agricultural research. 1988. v. 3 (5). p. 269-274. Includes references. (NAL Call No.: DNAL S539.5.A77).

0201

Tomatoes can beat the heat.
ORGAA. Pleasant, B. Emmaus, Pa. : Rodale Press. Organic gardening. Dec 1984. v. 31 (12). p. 26-30. (NAL Call No.: DNAL 57.8 OR32).

0202

Total residues of 2-naphthoxyacetic acid, 2-(6-hydroxynaphthoxy)acetic acid, and 2-(7-hydroxynaphthoxy)acetic acid in tomato plants and fruit by high-performance liquid chromatography.
JAFCAU. Archer, T.E. Stokes, J.D. Washington, D.C. : American Chemical Society. Journal of agricultural and food chemistry. Nov/Dec 1988. v. 36 (6). p. 1307-1309. Includes references. (NAL Call No.: DNAL 381 J8223).

0203

Transpiration in growth retardant treated poinsettia, bean and tomato (Ancymidol, chlormequat, daminozide).
Barrett, J.E. Nell, T.A. S.l., The Society. Proceedings of the ... annual meeting of the Florida State Horticultural Society. 1981 (pub. 1982). v. 94. p. 85-87. Includes 16 ref. (NAL Call No.: 81 F66).

0204

Transplant age and N and P nutrition effects on growth and yield of tomatoes.
HJHSA. Weston, L.A. Zandstra, B.H. Alexandria, Va. : American Society for Horticultural Science. HortScience. Feb 1989. v. 24 (1). p. 88-90. Includes references. (NAL Call No.: DNAL SB1.H6).

0205

Transplant quality and metal concentrations in vegetable transplants grown in media containing sewage sludge compost (Tomato, cabbage, phytotoxicity).
Sterrett, S.B.HJHSA. Chaney, R.L.; Reynolds, C.W.; Schales, F.D.; Douglass, L.W. Alexandria : American Society for Horticultural Science. HortScience. Dec 1982. v. 17 (6). p. 920-922. ill. 16 ref. (NAL Call No.: SB1.H6).

0206

Transplant quality, yield, and heavy-metal accumulation of tomato, muskmelon, and cabbage grown in media containing sewage sludge compost (Toxicity, vegetable, Brassica oleracea, Lycopersicon esculentum).
Sterrett, S.B.JOSHB. Reynolds, C.W.; Schales, F.D.; Chaney, R.L.; Douglass, L.W. Alexandria : The Society. Journal of the American Society for Horticultural Science. Jan 1983. v. 108 (1). p. 36-41. Includes references. (NAL Call No.: 81 SO12).

0207

Transplant tomato herbicide study.
Hillyer, I. Kapusta, G. Carbondale, Ill., Southern Illinois University. AG reviewSouthern Illinois University. School of Agriculture. 1981. 1981. p. PLSS67-PLSS69. (NAL Call No.: S537.S5S6).

0208

Transplanting and plastic cover effects on chile growth and yield.
NEXRA. Montes, F. Cotter, D.J. Las Cruces, N.M. : The Station. Research report - New Mexico University, College of Agriculture and Home Economics, Agricultural Experiment Station.

July 1984. (534). 11 p. Includes references. (NAL Call No.: DNAL 100 N465R).

0209

Vine-ripened profits.
Hofstetter, B. Emmaus, Pa. : Regenerative Agriculture Association. The New farm. May/June 1988. v. 10 (4). p. 38-41. (NAL Call No.: DNAL S1.N32).

0210

Water quantity and time of N and K application for trickle-irrigated tomatoes.
JOSHB. Locascio, S.J. Olson, S.M.; Rhoads, F.M. Alexandria, Va. : The Society. Tomatoes (Lycopersicon esculentum Mill.) were grown during two seasons at two locations on fine sands and fine sandy loam soils to study the influence of water quantity, frequency of water application, and timing of N and K application for polyethylene-mulched, trickle-irrigated fresh-market tomatoes. Water quantities were 0.50 and 1.0 times pan evaporation applied one or three times daily. Nitrogen and K were applied 100% preplant or 40% applied preplant and 60% applied with trickle irrigation. Higher tomato leaf tissue N and K concentrations in one of the two seasons and higher fruit yields were obtained with 0.5 than with 1.0 time pan water evaporation on a fine sand at Gainesville, Fla. On a fine sandy loam soil at Quincy, fruit yields were higher in a relatively dry season with the higher water quantity and not influenced by the water quantity applied in the second relatively wet season. The number of daily water applications (one vs. three) at both locations had no effect on N and K uptake or fruit yields. Time of N and K applications had no effect on early yields, but total yields were higher with split than all preplant-applied N and K on the fine sandy soil. Split applications of fertilizer resulted in greater yields of extra-large fruit at mid-season and of extra large fruit at late harvest than all preplant-applied fertilizer. On the fine sandy loam soil, time of fertilizer application had no effect on yield. Journal of the American Society for Horticultural Science. Mar 1989. v. 114 (2). p. 265-268. Includes references. (NAL Call No.: DNAL 81 SO12).

0211

Water relations of container-grown woody and herbaceous plants following antitranspirant sprays.
HJHSA. Hummel, R.L. Alexandria, Va. : American Society for Horticultural Science. HortScience. July 1990. v. 25 (7). p. 772-775. Includes references. (NAL Call No.: DNAL SB1.H6).

0212

Weed control in direct-seeded tomato, Lycopersicon esculentum, for transplants.
WETEE9. Glaze, N.C. Champaign, Ill. : The Society. Weed technology : a journal of the Weed Science Society of America. July 1988. v. 2 (3). p. 333-337. Includes references. (NAL Call No.: DNAL SB610.W39).

0213

Yield and plant nutrient content of vegetables trickle-irrigated with municipal wastewater.
HJHSA. Neilsen, G.H. Stevenson, D.S.; Fitzpatrick, J.J.; Brownlee, C.H. Alexandria, Va. : American Society for Horticultural Science. HortScience. Apr 1989. v. 24 (2). p. 249-252. Includes references. (NAL Call No.: DNAL SB1.H6).

0214

Yield and quality of processing tomatoes in response to irrigation rate and schedule.
JOSHB. Sanders, D.C. Howell, T.A.; Hile, M.M.S.; Hodges, L.; Meek, D.; Phene, C.J. Alexandria, Va. : The Society. Field studies were conducted on a Typic Xerorthents Entiosols soil (Hanford sandy loam) to determine the response of two cultivars of processing tomatoes (Lycopersicon esculentum Mill.) to trickle irrigation applied at three percentages of evapotranspiration (ET) to either the top of the plant row or between the beds using a traveling irrigation system. Irrigation was terminated when fruits were either 30% or 70% red 14 or 7 days before harvest). Yields of red tomatoes and total tomatoes increased with increasing trickle irrigation water. The concentrations of soluble solids (SSC) and total solids (TS) and pH decreased with increasing trickle irrigation rates, while color, fruit size, and acidity increased, as did the yield of SSC and TS per hectare. Placement of trickle irrigation on the plant row was more favorable than placement in the furrow between the beds for yield and quality characteristics. Trickle irrigation to 70% ET terminated 7 days before harvest produced responses similar to conventional furrow irrigation. Although statistically these treatments could not he compared directly to conventional furrow, all traveling trickle irrigation rates were superior in water use efficiency to that of the conventional furrow irrigation. Trickle irrigation rates of 35% ET, 70% ET, and 105% ET did not differ in water use efficiency. Chemical names used: 2(a-naphthoxy)- N,N-diethyl propionamide (napropamide); S-propyl butylethiocarbamate pebulate). Journal of the American Society for Horticultural Science. Nov 1989. v. 114 (6). p. 904-908. Includes references. (NAL Call No.: DNAL 81 SO12).

0215

Yield of successively cropped polyethylene-mulched vegetables as affected by irrigation method and fertilization management.
JOSHB. Clough, G.H. Locascio, DS.J.; Olson, S.M. Alexandria, Va. : The Society. Broccoli (Brassica oleracea L. var. italica), followed by tomato (Lycopersicon esculentum Mill.) or squash (Cucurbita pepo L. var. melopepo), and then broccoli were produced in succession re-using the same polyethylene-mulched beds at two locations with different soil types. First-crop broccoli yield was earlier and greater with drip than with overhead irrigation and increased as N-K rate increased from 135-202 to 270-404 kg.ha-1. On a fine sandy soil, yields of second and third crops produced with residual or concurrent fertilization increased with an increase in N-K rate. On a loamy fine sandy soil, yields also increased as the rate of residual N-K increased; yields of second and third crops did not respond to rate of concurrently applied N-K, but were higher with concurrent than with residual fertilization, except total tomato yields were similar with either application time. With drip irrigation and concurrent weekly fertigation, yields equalled or exceeded those obtained with preplant fertilization and overhead irrigation. Journal of the American Society for Horticultural Science. Nov 1990. v. 115 (6). p. 884-887. Includes references. (NAL Call No.: DNAL 81 SO12).

0216

Yield of trickle-irrigated tomatoes as affected by time of N and K application.
JOSHB. Dangler, J.M. Locascio, S.J. Alexandria, Va. : The Society. Tomatoes (Lycopersicon esculentum Mill.) were grown on polyethylene-mulched beds of an Arredondo fine sand during two seasons to evaluate the effects of trickle-applied N and/or K, percentages of trickle-applied N and K (50%, 75%, and 100%), and schedules of N and K application on fruit yield, and leaf and shoot N and K concentrations. The daily irrigation requirement, calculated at 47% of the water evaporated from a U.S. Weather Service Class A pan (Epan), was met by the application of 4.6 mm to 7.2 mm water/day. Fertilizer was injected weekly in a variable (2% to 12.5% of the total amount weekly) or constant (8.3% of the total amount weekly) schedule during the first 12 weeks of each season. Trickle-applied nutrients and trickle-applied percentage of nutrients interacted in their effects on early, midseason, and total marketable fruit yields. When N + K and N were trickle-applied, the mean early total marketable fruit yield decreased linearly from 25.3 t.ha-1 to 16.3 t.ha-1 as the trickle-applied percentage of nutrients increased from 50% to 100%; but when K was trickle-applied (100% preplant-applied N), yields were not affected by the trickle-applied percentage (mean 26.3 t.ha-1). The weekly schedule of N and K injection had no effect on fruit yield or other characteristics. Higher leaf N and K concentrations early in the season were obtained when the respective nutrient was 50% to 100% preplant-applied than when the respective nutrient was 75% to 100% trickle-applied; but late in the season, higher concentrations were obtained when the respective nutrient was trickle-applied. Higher yields, however, were associated with higher early season leaf N concentrations rather than with higher late-season leaf N or K concentrations. Journal of the American Society for Horticultural Science. July 1990. v. 115 (4). p. 585-589. Includes references. (NAL Call No.: DNAL 81 SO12).

0217

Yield response of staked, fresh-market tomatoes to reduced use of fertilizers and insecticides.
Csizinszky, A.A. Schuster, D.J. Alexandria, Va., The Society. Journal of the American Society for Horticultural Science. July 1982. v. 107 (4). p. 648-652. 21 ref. (NAL Call No.: 81 SO12).

0218

Yields of greenhouse tomatoes managed to maintain specific petiole sap nitrate levels.
HJHSA. Coltman, R.R. Alexandria, Va. : American Society for Horticultural Science. HortScience. Feb 1988. v. 23 (1). p. 148-151. Includes references. (NAL Call No.: DNAL SB1.H6).

0219

1979 pesticide use on Florida vegetables, a preliminary report.
Ferguson, W.L. McCalla, I.E. Washington, D.C., The Service. Extract: According to the 1979 Vegetable Pesticide Survey, nearly 4.6 million pounds of pesticides were used to control weeds, insects, diseases, and nematodes on six vegetable crops in Florida. The six vegetable crops included cabbage, celery, lettuce, sweet corn, tomatoes, and watermelon. About 4.6 million acre-treatments were made ranging from 2.2 million for tomatoes to 148,800 for cabbage. ERS staff report - U.S. Dept. of Agriculture, Economic Research Service. July 1981. Available from NTIS. July 1981. (AGESS810708). 23 p. 6 ref. (NAL Call No.: 916762(AGE)).

0220

1979 pesticide use on vegetables in the Northeast, a preliminary report.
Ferguson, W.L. McCalla, I.E. Washington, D.C., The Service. Extract: According to the U.S. Department of Agriculture's 1979 Vegetable Pesticide Survey, approximately 1.3 million pounds of pesticides were used to control weeds, insects, diseases and nematodes on 10 vegetable crops in New York and New Jersey. The 10 vegetable crops include cabbage, carrots, celery, cucumbers, green peas, lettuce, onions, snap beans, sweet corn, and tomatoes.

Approximately 825,000 acre-treatments were made ranging from 262,000 for sweet corn to 700 for carrots. ERS staff report - U.S. Dept. of Agriculture, Economic Research Service. Dec 1981. Available from NTIS. Dec 1981. (AGES811218). 37 ref. 7 ref. (NAL Call No.: 916762(AGE)).

0221

1979 pesticide use on vegetables in the Southeast, a preliminary report.
Ferguson, W.L. McCalla, I.E. Washington, D.C., The Service. Extract: In this report, patterns of pesticide use in the Southeast (North Carolina, South Carolina, and Georgia) in 1979 are discussed for cabbage, cantaloups, cucumbers, snap beans, sweet corn, tomatoes, and watermelons. Survey data were collected on quantities of pesticides used, acres treated, acre-treatments, number of applications, annual rates, and rate per acre-treatment. This report provides information useful to policymakers, researchers, extension specialists, and industry personnel. ERS staff report - U.S. Dept. of Agriculture, Economic Research Service. Oct 1981. Available from NTIS. Oct 1981. (AGES811029). 32 p. 11 ref. (NAL Call No.: 916762(AGE)).

0222

1979 pesticide use on vegetables in the Southwest, a preliminary report.
Ferguson, W.L. McCalla, I.E. Washington, D.C., The Service. Abstract: According to U.S. Department of Agriculture's 1979 Vegetable Pesticide Survey, about 1.7 million pounds of pesticides were used to control weeds, insects, diseases, and nematodes on 10 vegetable crops in Arizona, Colorado, and Texas. The 10 vegetable crops included cabbage, cantaloups, carrots, cucumbers, lettuce, onions, snap beans, sweet corn, tomatoes, and watermelons. Nearly 1.1 million acre-treatments were made ranging from about 284,000 for onions to 4,000 for cucumbers and snap beans. ERS staff report - U.S. Dept. of Agriculture, Economic Research Service. Dec 1981. Available from NTIS - order no. PB82-166-885. Dec 1981. (AGES811221). 45 p. 7 ref. (NAL Call No.: 916762(AGE)).

0223

Blossom-end rot in chile as effected by calcium and soil moisture / Nour Mohsen .
Nour, Mohsen. University Park, N.M. : New Mexico State University, Agricultural Experiment Station, 1965. Cover title. 8, 2 p. ; 23 cm. Bibliography: p. 9-10 . (NAL Call No.: DNAL 100 N465 (1) no.495).

0224

Diethatyl for hairy galinsoga (Galinsoga ciliata) control in peppers (Capsicum annuum) integrated with cultural practices for phytophthora blight control.
WEESA6. Majek, B.A. Johnston, S.A. Champaign, Ill. : Weed Science Society of America. Weed science. July 1986. v. 34 (4). p. 569-571. Includes 7 references. (NAL Call No.: DNAL 79.8 W41).

0225

Effects of no tillage and various tillage methods on yields of maize, field beans and pepper grown on a mollisol in southern Puerto Rico.
JAUPA. Lugo-Mercado, H.M. Badillo-Feliciano, J.; Ortiz-Alvarado, F.H. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Oct 1984. v. 68 (4). p. 349-354. Includes 15 references. (NAL Call No.: DNAL 8 P832J).

0226

Elements in major raw agricultural crops in the United States. 3. Cadmium, lead, and eleven other elements in carrots, field corn, onions, rice, spinach, and tomatoes.
JAFCAU. Wolnik, K.A. Fricke, F.L.; Capar, S.G.; Meyer, M.W.; Satzger, R.D.; Bonnin, E.; Gaston, C.M. Washington, D.C. : American Chemical Society. Journal of agricultural and food chemistry. Sept/Oct 1985. v. 33 (5). p. 807-811. Includes references. (NAL Call No.: DNAL 381 J8223).

0227

Field assessment of agricultural BMPs.
Bottcher, A.B. Campbell, K.L.; Miller, L.W.; Sweeney, D.W.; Locascio, S.J. S.l. : The Society. Proceedings - Soil and Crop Science Society of Florida. 1986. v. 45. p. 60-67. Includes references. (NAL Call No.: DNAL 56.9 S032).

0228

Impact parameters of spherical viscoelastic objects and tomatoes.
TAAEA. Lichtensteiger, M.J. Holmes, R.G.; Hamdy, M.Y.; Blaisdell, J.L. St. Joseph, Mich. : American Society of Agricultural Engineers. Transactions of the ASAE. Mar/Apr 1988. v. 31 (2). p. 596-602. ill. Includes references. (NAL Call No.: DNAL 290.9 AM32T).

0229

The kinetics of phosphorus, manganese and zinc absorption in mycorrhizal tomatoes, Lycopersicum esculentum L. / Glomus fasciculatus (Thaxter sensu Gerdemann) Gerdemann and Trappe, comb. nov. / by William Arthur Cress. -.
Cress, William Arthur, 1947-. Ann Arbor, Mich. University Microfilms International 1979. Thesis--New Mexico State University, 1978. Facsimile produced by microfilm-xerography. xii, 89 leaves : ill. ; 28 cm. Bibliography: leaves 60-76. (NAL Call No.: DISS 78-23,156).

0230

NF-10 bioactivators enhance photosynthesis, plant growth, yield and quality in commercial crops.
PPGGD. Tenzer, A.I. Lake Alfred, Fla. : The Society. Proceedings annual meeting - Plant Growth Regulator Society of America. 1987. (14th). p. 316-325. Includes references. (NAL Call No.: DNAL SB128.P5).

0231

Pest control in commercial tomato production.
Binning, L. K. Wyman, J. A.; Stevenson, W. R. 1982. This publication discusses various pesticides for weed, insect an disease control in the production of tomatoes. Document available from: University of Wisconsin, Agricultural Bulletin Building, 1535 Observatory Drive, Madison, Wisconsin 53706. 4 p. (NAL Call No.: Not available at NAL.).(NAL Call No.: A2351).

0232

Response of tomatoes to plant protectors and the effect of floating row covers on radish, cabbage, and sweet corn at Redmond, Oregon in 1986.
Nelson, J.L. Young, M. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1987. v. 20. p. 170-176. Includes references. (NAL Call No.: DNAL 309.9 N216).

0233

Studies of the effects of brassinosteroid treatment on the growth and yield of crops.
PPGGD. Lim, U.K. Lake Alfred : The Society. Proceedings annual meeting - Plant Growth Regulator Society of America. 1985. (12th). p. 213-219. (NAL Call No.: DNAL SB128.P5).

0234

Assessment of bentazon tolerance in pepper (Capsicum sp.).
WETEE9. Harrison, H.F. Jr. Fery, R.L. Champaign, Ill. : The Society. Weed technology : a journal of the Weed Science Society of America. Apr/June 1989. v. 3 (2). p. 307-312. Includes references. (NAL Call No.: DNAL SB610.W39).

0235

Association of epicuticular sugars with aphid resistance in hybrids with wild tomato.
JOSHB. Goffreda, J.C. Steffens, J.C.; Mutschler, M.A. Alexandria, Va. : The Society. Behavioral studies have shown that aphid resistance in Lycopersicon pennelli (Corr.) D'Arcy is due to the presence of sugar esters in glandular exudate of the type IV trichomes. In this study, various methods for the estimation of epicuticular sugar ester concentrations were examined. There was a significant negative relationship between the concentration of sugar esters on the leaf and the level of potato aphid infestation in a segregating L. esculentum X L. pannellii F2 population. Selection for sugar ester accumulation should be an efficient selection technique for the aphid resistance of L. pennellii and other species that synthesize epicuticular sugar esters. Journal of the American Society for Horticultural Science. Jan 1990. v. 115 (1). p. 161-165. Includes references. (NAL Call No.: DNAL 81 SO12).

0236

Backyard tomato production.
Williams, D. Auburn, Ala. : The Service. Circular ANR - Cooperative Extension Service, Auburn University. Subseries: Agriculture & natural resources, horticulture. Feb 1987. (302). 2 p. ill. (NAL Call No.: DNAL S544.3.A2C47).

0237

Capillary gas chromatograms of leaf volatiles. A possible aid to breeders for pest and disease resistance (Tests with tomato cultivars).
Andersson, B.A. Holman, R.T.; Lundgren, L.; Stenhagen, G. Washington, D.C., American Chemical Society. Journal of agricultural and food chemistry. Sept/Oct 1980. v. 28 (5). p. 985-989. ill. 10 ref. (NAL Call No.: 381 J8223).

0238

Combining ability estimates for early blight resistance in tomato.
JOSHB. Maiero, M. Ng, T.J.; Barksdale, T.H. Alexandria, Va. : The Society. Six inbred tomato (Lycopersicon esculentum Mill.) genotypes and 13 hybrids among them were evaluated at two locations for resistance to early blight (Alternaria solani). The breeding lines 71B2, C1943, and NC EBR-1 were the most resistant, while 'Castlejay' was consistently the most susceptible. Hybrid means for area under the disease progress curve (AUDPC) generally were intermediate to their parental values, indicating quantitative genetic control. Five of the parents were included in a diallel mating design to obtain estimates of general combining ability (GCA) and specific combining ability (SGA) for the resistance trait. Both GCA and SCA were highly significant; the GCA component accounted for 88.2% of the genotypic variation. Journal of the American Society for Horticultural Science. Jan 1989. v. 114 (1). p. 118-121. Includes references. (NAL Call No.: DNAL 81 SO12).

0239

Consequences of modifying biochemically mediated insect resistance in Lycopersicon species.
ACSMC. Kennedy, G.G. Washington, D.C. : The Society. ACS Symposium series - American Chemical Society. 1986. (296). p. 130-141. Includes 37 references. (NAL Call No.: DNAL QD1.A45).

0240

Cultivar and planting date effects on tomato yields and quality.
Cotter, D.J. Hilty, J. Las Cruces. Research report - New Mexico, Agricultural Experiment Station. Mar 1980. Mar 1980. (414). 8 p. 6 ref. (NAL Call No.: 100 N465R).

0241

Differential activation of expression of a suberization-associated anionic peroxidase gene in near-isogenic resistant and susceptible tomato lines by elicitors of Verticillium albo-atratrum.
PLPHA. Mohan, R. Kolattukudy, P.E. Rockville, Md. : American Society of Plant Physiologists. We tested whether the expression of the suberization-associated anionic peroxidase gene is involved in the timely appearance of the vascular suberized coating involved in the resistance of a tomato line to Verticillium albo-atrum. The mRNA for this peroxidase appeared at a higher level one day earlier in wound-healing fruits of the resistant tomato line than in a near-isogenic susceptible line. Cell cultures from the resistant line, when treated with low levels (nanograms per milliliter) of fungal elicitor, generated the

peroxidase mRNA and this apparent activation of the peroxidase gene expression could be detected in minutes, whereas the cells from the susceptible line hardly responded. Plant physiology. Jan 1990. v. 92 (1). p. 276-280. ill. Includes references. (NAL Call No.: DNAL 450 P692).

0242

Differential flood stress resistance of two tomato genotypes.
JOSHB. McNamara, S.T. Mitchell, C.A. Alexandria, Va. : The Society. Tomato accessions PI 128644 Lycopersicon peruvianum var. dentatum Mill.) and PI 406966 (L. esculentum Mill.) were identified in preliminary screening trials as being relatively nonresistant and resistant to root-zone flooding, respectively. A comparative study of these accessions was undertaken to examine adaptive responses to inundation. Root and shoot growth of both accessions were inhibited by 120 hr of flooding. Aerobic respiratory capacity of secondary roots of both accessions decreased to a similar extent after 24 hr of inundation. Flooding did not significantly affect anaerobic root respiration rate of either accession. Stomatal conductance decreased after 24 hr of flooding for both accessions, with some recovery by PI 406966 after 168 hr of treatment, coinciding with development of adventitious roots on lower stems. Few adventitious roots formed on flooded PI 128644 plants. Leaf water potential of both accessions initially increased as a result of flooding, but declined to near control level by 120 hr of treatment. Total phenol content of PI 128644 roots decreased with 72 hr of flooding, while that of PI 406966 roots was not significantly affected. Factors underlying the greater resistance of PI 406966 to flooding remain unclear, but may include a lower root respiratory requirement for 02 and greater ability to sequester or eliminate toxic substances during inundation. Journal of the American Society for Horticultural Science. Nov 1989. v. 114 (6). p. 976-980. Includes references. (NAL Call No.: DNAL 81 S012).

0243

Differential tolerance of peppers (Capsicum annuum) to bentazon.
WETEE9. Wolff, D.W. Monaco, T.J.; Collins, W.W. Champaign, Ill. : The Society. Weed technology : a journal of the Weed Science Society of America. Oct/Dec 1989. v. 3 (4). p. 579-583. Includes references. (NAL Call No.: DNAL SB610.W39).

0244

Early blight resistance of tomatoes.
CYGED. Avdeev, Yu.I. Shcherbinin, B.M. New York, N.Y. : Allerton Press. Cytology and genetics. Translated from: TSitologiia i genetika, v. 22 (2), 1988, p. 21-27. (QH573.T75). 1988. v. 22 (2). p. 21-26. Includes references. (NAL Call No.: DNAL QH573.C92).

0245

Effect of diurnal changes in soil temperature on resistance to Meloidogyne incognita in tomato (Lycopersicon esculentum, cultivars).
Araujo, M.T. Bassett, M.J.; Augustine, J.J.; Dickson, D.W. Ames, Iowa, Society of Nematologists. Journal of nematology. July 1982. v. 14 (3). p. 414-416. 10 ref. (NAL Call No.: QL391.N4J62).

0246

Effect of diurnal temperature variation on early yield and fruit size of greenhouse tomato.
AAREEZ. Gent, M.P.N. New York, N.Y. : Springer. Tomato plants were grown in a greenhouse in the northeast U.S. at a mean temperature of 17 degrees celsius. Early yield and fruit size were compared for plants grown under a 3 or a 9 degrees celsius day-night temperature variation. Plants were grown in ambient or in carbon dioxide enriched air and in plantings that produced ripe fruit in winter and spring. The 9 degrees celsius diurnal temperature variation accelerated fruit growth and ripening, resulting in greater early yield. It did not inhibit fruit set or result in a greater percentage of misshapen fruit. In spring, carbon dioxide enrichment increased fruit growth more under the 9 than 3 degrees celsius diurnal temperature variation. Under the 9 degrees celsius diurnal temperature variation, carbon dioxide enrichment prevented the reduction in fruit weight seen under ambient carbon dioxide. The weight per fruit and percentage of large fruit were lower in spring than winter, and due to their effect on fruit size, the growth regimens affected the yield of high quality fruit more in spring than in winter. Applied agricultural research. 1988. v. 3 (5). p. 257-263. Includes references. (NAL Call No.: DNAL S539.5.A77).

0247

Effect of ethylene action inhibitors upon wound-induced gene expression in tomato pericarp.
PLPHA. Henstrand, J.M. Handa, A.K. Rockville, Md. : American Society of Plant Physiologists. The contribution of wound-ethylene to wound-induced gene expression was investigated in unripe tomato pericarp using inhibitors of ethylene action. Wounded unripe tomato pericarp was treated with 2,5-norbornadiene or silver

thiosulfate to inhibit specifically the induction of ethylene-dependent mRNA species. Poly(A)+ RNAs isolated from these tissues after 12 hours of wounding were translated in vitro in a rabbit reticulocyte lysate system and 35S methionine-labeled polypeptides were compared to unwounded controls after separation by one and two-dimensional polyacrylamide gel electrophoresis. Results show that mechanical wounding induces a dramatic shift in gene expression (over 50 mRNA species) but expression of less than 15% of these genes is affected by the treatment with ethylene action inhibitors. A selective decrease in mRNAs coding for a 37 kilodalton doublet and 75 kilodalton polypeptides is observed in 2,5-norbornadiene and silver thiosulfate treated wounded pericarp. Levels of hydroxyproline-rich glycoprotein mRNAs induced in wounded tissue were not influenced by inhibitors of ethylene action. Plant physiology. Sept 1989. v. 91 (1). p. 157-162. ill. Includes references. (NAL Call No.: DNAL 450 P692).

0248

Effect of growth regulators on the height of ornamental eggplant, Solanum melongena L.
Sanderson, K.C. Martin, W.C. Jr.; Reed, R.B. New Brunswick, N.J. : Plant Growth Regulator Society of America. Quarterly - PGRSA. Jan/Mar 1989. v. 17 (1). p. 10-14. Includes references. (NAL Call No.: DNAL QK745.P55).

0249

Effect of the fungus Paecilomyces lilacinus on the larval population and root knot formation of Meloidogyne incognita in tomato.
JAUPA. Roman, J. Rodriguez-Marcano, A. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Apr 1985. v. 69 (2). p. 159-167. ill. Includes references. (NAL Call No.: DNAL 8 P832J).

0250

Effect of tomato cultivar and fertilizer regime on the survival of Liriomyza trifolii (Diptera: Agromyzidae).
JEENAI. Bethke, J.A. Parrella, M.P.; Trumble, J.T.; Toscano, N.C. College Park, Md. : Entomological Society of America. Journal of economic entomology. Feb 1987. v. 80 (1). p. 200-203. Includes references. (NAL Call No.: DNAL 421 J822).

0251

The effects of genotype and ethephon on Rhizoctonia soil rot of processing tomatoes (Rhizoctonia salani, USA).
Murphy, J.B. McFerran, J.; Goode, M.J. Alexandria, Va. : American Society for Horticultural Science. HortScience. Oct 1984. v. 19 (5). p. 676-677. Includes 12 references. (NAL Call No.: SB1.H6).

0252

Effects of the host-selective toxins of Alternaria alternata f. sp. lycopersici on suspension-cultured tomato cells.
PHYTAJ. Fuson, G.B. Pratt, D. St. Paul, Minn. : American Phytopathological Society. Tomato cell cultures were used to investigate the metabolic effects of the host-selective toxins produced by Alternaria alternata f. sp. lycopersici, a pathogen of tomato. Toxin concentrations of approximately 1 microM were sufficient to strongly inhibit cell expansion, accumulation of dry matter, and cell division in suspension cultures. Growth-inhibitory concentrations of toxin did not inhibit respiration, uptake of 3H leucine or its incorporation into protein, or uptake of 3- 14C pyruvate or its incorporation into lipids. The toxins also did not induce potassium ion leakage. The toxins did inhibit uptake of 3H uridine and 3H thymidine but apparently did not inhibit net synthesis of RNA or DNA; the inhibition of uridine and thymidine uptake probably was not the cause of growth inhibition. The toxins apparently did not induce pyrimidine shortage, because toxin sensitivity was unaffected by supplementing cultures with pyrimidines or aspartate. Our results in cultured cells do not support the theory that these toxins inhibit aspartate carbamoyltransferase, an enzyme involved in pyrimidine biosynthesis. Phytopathology. Dec 1988. v. 78 (12,pt.2). p. 1641-1648. Includes references. (NAL Call No.: DNAL 464.8 P56).

0253

Effects of the temperature and duration of the initial incubation period on resistance to Meloidogyne incognita in tomato (Lycopersicon esculentum, cultivar).
Araujo, M.T. Bassett, M.J. Augustine, J.J.; Dickson, D.W. Ames, Iowa, Society of Nematologists. Journal of nematology. July 1982. v. 14 (3). p. 411-413. 6 ref. (NAL Call No.: QL391.N4J62).

0254

Efficient transformation of tomato and the introduction and expression of a gene for herbicide tolerance.
Fillatti, J.J. Kiser, J.; Rose, B.; Comai, L. New York : Alan R. Liss. Plant biology. In the series analytic: Tomato biotechnology / edited by D.J. Nevins and R.A. Jones. Proceedings of a

Symposium, August 20-22, 1986, Davis, California. 1987. v. 4. p. 199-210. ill. Includes references. (NAL Call No.: DNAL QH301.P535).

0255

Ethylene evolution and polyamine accumulation by tomato subjected to interactive stresses of ammonium toxicity and potassium deficiency.
JOSHB. Corey, K.A. Barker, A.V. Alexandria, Va. : The Society. Tomato plants (Lycopersicon esculentum Mill. 'Heinz 1350', yellow-green-5, and neglecta-1) were grown in sand culture with 15mM NH4+ or NO3- and with K+ varying from 0 to 8 mM. Other nutrients were provided at the concentrations of Hoagland's solution. The medium supplying NH4+ was buffered with CaCO3 (pH 6.9) or was unbuffered (pH 3.4). Silver ions (0.01 micromole) were incorporated in the nutrient solution in one experiment. Ammonium nutrition relative to NO3- nutrition elevated rates of ethylene evolution from all genotypes, but yg-5 and neg-1 showed resistance to NH4+ toxicity and exhibited relatively low ethylene evolution. Ethylene evolution declined as K+ supply increased. Accelerated rates of ethylene evolution did not occur at tissue K+ concentrations greater than 10 g/kg of the dry weights of shoots with NO3- nutrition, but higher K+ levels were required with NH4+ nutrition. Putrescine concentrations in leaves of 'Heinz 1350' supplied with NH4+ were 2 to 5 times greater than in leaves of plants supplied with NO3-. Potassium deficiency increased putrescine accumulation regardless of N form. Spermidine concentrations in leaves of plants supplied with NH4+ were lower than in those supplied with NO3-, whereas spermine concentrations were unaffected by treatments. 'Heinz 1350' grown in (NH4+)-based nutrient solutions with 0.01 micromole Ag+ had low rates of ethylene evolution and developed few symptoms of NH4+ toxicity. Quantities of ethylene and putrescine produced by tomato genotypes susceptible to the nutritional stresses were linked directly to the degree of stress imposed, and symptoms of NH4+ toxicity were related to increased ethylene synthesis. Journal of the American Society for Horticultural Science. July 1989. v. 114 (4). p. 651-655. Includes references. (NAL Call No.: DNAL 81 SO12).

0256

Evaluation of techniques to measure chilling injury in tomato.
HJHSA. Kamps, T.L. Isleib, T.G.; Herner, R.C.; Sink, K.C. Alexandria, Va. : American Society for Horticultural Science. HortScience. Dec 1987. v. 22 (6). p. 1309-1312. Includes references. (NAL Call No.: DNAL SB1.H6).

0257

Expression of A chimeric polygalacturonase gene in transgenic Rin (ripening inhibitor) tomato fruit.
Giovannoni, J.J. DellaPenna, D.; Lashbrook, C.C.; Bennett, A.B.; Fischer, R.L. New York, N.Y. : Alan R. Liss. Plant biology. In the series analytic: Horticultural Biotechnology / edited by A.B. Bennett and S.D. O'Neill. Proceedings of an International Symposium, August 21-23, 1989, Davis, California. 1990. v. 11. p. 217-227. Includes references. (NAL Call No.: DNAL QH301.P535).

0258

Field performance of transgenic tomato plants expressing the Bacillus thuringiensis var. Kurstaki insect control protein.
Delannay, X. LaVallee, B.J.; Proksch, R.K.; Fuchs, R.L.; Augustine, S.R.; Layton, J.G.; Fischhoff, D.A. New York, N.Y. : Nature Publishing Company. Bio/technology. Dec 1989. v. 7 (12). p. 1265-1269. ill. Includes references. (NAL Call No.: DNAL QH442.B5).

0259

Flooding stress and the root development of several tomato genotypes.
HJHSA. Poysa, V.W. Tan, C.S.; Stone, J.A. Alexandria, Va. : American Society for Horticultural Science. HortScience. Feb 1987. v. 22 (1). p. 24-26. Includes references. (NAL Call No.: DNAL SB1.H6).

0260

Fresh market tomato cultivar trial, early planting.
Price, H.C. Grajuaskis, J.J.; Baughan, R.A. West Lafayette, Indiana : The Station. Station bulletin - Purdue University, Agricultural Experiment Station. In the series analytic: Midwestern vegetable variety trial report for 1987 / compiled by J. E. Simon, D. D. Daniels and R. G. Snyder.~ Includes statistical data. Dec 1987. (528). p. 101-103. (NAL Call No.: DNAL HD1775.I6I5).

0261

Gene-for-gene relationships specifying disease resistance in Xanthomonas campestris pv. vesicatoria--pepper interactions.
MPMIEL. Minsavage, G.V. Dahlbeck, D.; Whalen, M.C.; Kearney, B.; Bonas, U.; Staskawicz, B.J.; Stall, R.E. St. Paul, Minn. : APS Press. Molecular plant-microbe interactions : MPMI. Jan/Feb 1990. v. 3 (1). p. 41-47. ill. Includes references. (NAL Call No.: DNAL SB732.6.M65).

0262

Genetic basis of the epidemiologic effects of resistance to Meloidogyne incognita in the tomato cultivar small fry.
Bost, S.C.JONEB. Triantaphyllou, A.C. Ames : Society of Nematologists. Journal of nematology. Oct 1982. v. 14 (4). p. 540-544. Includes references. (NAL Call No.: QL391.N4J62).

0263

Greenhouse tomato cultivar evaluation trial--fall crop, Columbus, 1979.
Scott, J.W. Wooster, Ohio, The Center. Research circular - Ohio Agricultural Research and Development Center. Mar 1981. Mar 1981. (264). p. 18-19. (NAL Call No.: 100 OH3R).

0264

Growing staked tomatoes in Arkansas (Varieties, bacterial disease control).
Montgomery, F.W. Little Rock, Ark. : The Service. Leaflet EL - Arkansas University, Cooperative Extension Service. Mar 1984. Mar 1984. (148,rev.). 11 p. ill. (NAL Call No.: 275.29 AR4LE).

0265

Growth of genetically altered Pseudomonas solanacearum in soil and rhizosphere.
SSSJD4. Hartel, P.G. Williamson, J.W.; Schell, M.A. Madison, Wis. : The Society. The extent to which a bacterium can grow in soil and in the rhizosphere is influenced by the presence or absence of various genes. The effect of genetic alteration of the egl gene, encoding a beta-1,4-endoglucanase, on the growth of Pseudomonas solanacearum E.F. Smith (the causal agent of bacterial wilt) in soil and in the rhizosphere of tomato (Lycopersicon esculentum Mill.), common purslane (Portulaca oleracea L.), and pearl millet (Pennisetum glaucum (L.) R. Br.) was determined. Endoglucanase production by P. solanacearum was either inactivated by transposon (Tn5) insertion mutagenesis or enhanced twofold by increasing the egl copy number with a recombinant plasmid (pHE3). In a test of the stability of the genetic alterations in two different soils, the transposon in the chromosome was detectable for > 120 d, but the recombinant plasmid was apparently lost after 14 d in one soil and after 120 d in the other. In comparison to the wild-type strain, the generation times of the strains with the transposon and the recombinant plasmid increased 16 and 25%, respectively, in one soil solution and 35 and 53% in the other soil solution; this correlated well with the ability of the strains to grow in the same freshly moistened soils. Under conditions of soil inoculation, the genetically altered strains did not wilt tomato seedings significantly faster or slower than the wild-type strain. Although all of the P. solanacearum strains, including the wild type, grew in the rhizosphere of gnotobiotically grown tomato plants, none of the strains grew in the rhizosphere of tomato, common purslane, or pearl millet under nonsterile conditions. The data suggest that genetic alterations slow the growth of P. solancearum in freshly moistened soil, and that endoglucanase is of minor importance to the growth of P. solanacearum under these conditions. Soil Science Society of America journal. July/Aug 1990. v. 54 (4). p. 1021-1025. Includes references. (NAL Call No.: DNAL 56.9 SO3).

0266

Herbivore effects on fresh and processing tomato productivity before harvest.
JEENAI. Welter, S.C. Johnson, M.W.; Toscano, N.C.; Perring, T.M.; Varela, L. Lanham, Md. : Entomological Society of America. Effects of various insecticide treatment programs on tomato yield were evaluated from 1982 through 1986. Compared with results of fenvalerate applications, significant reductions in total yield and total fruit number were associated with applications of oxamyl. Significant negative regressions were obtained between percentage infestation by Lepidoptera and total fruit number, total yield, and mean fruit size. Indeterminate fresh-market cultivars produced larger fruit as the total number of fruit decreased. Determinate cultivars did not increased fruit size as total number of fruit decreased. These reductions may result from early-season herbivore effects such as fruit abortion. Implications of economic injury levels for direct pests are discussed. Journal of economic entomology. June 1989. v. 82 (3). p. 935-941. Includes references. (NAL Call No.: DNAL 421 J822).

0267

Horizon, a fresh market tomato with concentrated fruit set.
Scott, J.W. Bartz, J.A.; Bryan, H.H.; Everett, P.H.; Gull, D.D.; Howe, T.K.; Stoffella, P.J.; Volin, R.B. Gainesville : The Station. Circular S - Florida, Agricultural Experiment Station. Includes statistical data. June 1985. (323). 8 p. (NAL Call No.: DNAL 100 F66CI).

0268

Increased value of resistance to infection if used in integrated pest management control of tomato curly top.
PHYTAJ. Martin, M.W. Thomas, P.E. St. Paul, Minn. : American Phytopathological Society. Phytopathology. May 1986. v. 76 (5). p. 540-542. Includes 19 references. (NAL Call No.: DNAL 464.8 P56).

0269

Inheritance of bentazon herbicide tolerance in pepper (Capsicum annuum).
HJHSA. Fery, R.L. Harrison, H.F. Jr. Alexandria, Va. : American Society for Horticultural Science. HortScience. Includes abstract. Oct 1989. v. 24 (5). p. 762. (NAL Call No.: DNAL SB1.H6).

0270

Inheritance of collar rot resistance in the tomato breeding lines C1943 and NC EBR-2.
PHYTA. Maiero, M. Ng, T.J.; Barksdale, T.H. St. Paul, Minn. : American Phytopathological Society. Collar rot is a tomato seedling disease caused by the fungus Alternaria solani. Resistant and susceptible parents, F1, F2, and backcross generations were evaluated for collar rot resistance in a greenhouse. Genetic analyses included midparent-hybrid comparisons, diallel analysis, and generation mean analysis. The genotypes C1943 and NC EBR-2 were most resistant to collar rot. Additive and dominant effects were important in controlling the trait, and collar rot resistance was incompletely recessive to susceptibility. Phytopathology. Dec 1990. v. 80 (12). p. 1365-1368. Includes references. (NAL Call No.: DNAL 464.8 P56).

0271

Inheritance of resistance to blotchy ripening in processing tomatoes.
JOSHB. Dick, J.A. Shattuck, V.I. Alexandria, Va. : The Society. Inheritance of resistance to blotchy ripening in tomato (Lycopersicon esculentum Mill.) cultivars intended for machine harvest was studied in two diallel crosses using the Hayman and Griffing analyses. Additive effects were most important as indicated by the high level of general combining ability compared with specific combining ability. Some hybrids performed better than the mid-parent mean; however, heterosis for resistance to blotch above the best inbred line was not evident. Epistasis occurred between recessive genes in two parents, resulting in reduced blotch. No significant interaction between the expression of blotch in diallel progeny and K availability was evident. Genotype-environment interaction was significant, but relative variation in blotch between experiments only occurred in cultivars with an intermediate level of resistance. Journal of the American Society for Horticultural Science. May 1990. v. 115 (3). p. 503-508. ill. Includes references. (NAL Call No.: DNAL 81 SO12).

0272

Inheritance of resistance to foliar bacterial spot of tomato incited by Xanthomonas campestris pv. vesicatoria.
JOSHB. Scott, J.W. Jones, J.B. Alexandria, Va. : The Society. Hawaii 7998 (foliage resistant to bacterial spot) was crossed with 'Walter' (susceptible) and F1, backcross, and F2 generations were derived. These genotypes were grown in the field at Bradenton, Fla. in the summers of 1984 and 1985 and inoculated with Xanthomonas campestris pv. vesicatoria, the incitant of bacterial spot. Disease severity for respective genotypes was similar both years, although somewhat greater in 1985. Disease severity in the F1 was intermediate to the parents, but slightly skewed toward resistance both years. The percentage of F2 plants with resistance comparable to Hawaii 7988 was 9.6% in 1984 and 4.6% in 1985. There was no evidence of cytoplasmic inheritance from three sets of reciprocal crosses tested in 1985. The data fit an additive-dominance genetic model, but dominance variance was negative both years, which indicates a small or negligible dominance effect. The negative dominance variance resulted in biased estimates of additive variance, narrow-sense heritability, and the number of effective factors. Nevertheless, narrow-sense hertibility was moderate to high. When incorporating this resistance into new genetic backgrounds, we suggest that a modified backcrossing scheme with rigorous disease screening be used to obtain plants from homozygous resistant BCF3 lines before crossing. Journal of the American Society for Horticultural Science. Jan 1989. v. 114 (1). p. 111-114. Includes references. (NAL Call No.: DNAL 81 SO12).

0273

Levels, dependability, and usefulness of resistance to tomato curly top disease.
PLDRA. Martin, M.W. Thomas, P.E. St. Paul, Minn. : American Phytopathological Society. Plant disease. Feb 1986. v. 70 (2). p. 136-141. Includes 22 references. (NAL Call No.: DNAL 1.9 P69P).

0274

Meloidogyne incognita resistance characteristics in tomato genotypes developed for processing.
JONEB. Roberts, P.A. May, D. Raleigh, N.C. : Society of Nematologists. Journal of nematology. July 1986. v. 18 (3). p. 353-359. Includes 15 references. (NAL Call No.: DNAL QL391.N4J62).

0275

Metribuzin metabolism by tomato cultivars with low, medium, and high levels of tolerance to metribuzin.
PCBPB. Smith, A.E. Phatak, S.C.; Emmatty, D.A. Duluth, Minn. : Academic Press. Pesticide biochemistry and physiology. Nov 1989. v. 35 (3). p. 284-290. ill. Includes references. (NAL Call No.: DNAL SB951.P49).

0276

Mutations in the tobacco mosaic virus 30-kD protein gene overcome Tm-2 resistance in tomato.
Meshi, T. Motoyoshi, F.; Maeda, T.; Yoshiwoka, S.; Watanabe, H.; Okada, Y. Rockville, Md. : American Society of Plant Physiologists. A resistance-breaking strain of tobacco mosaic virus (TMV), Ltb 1, is able to multiply in tomatoes with the Tm-2 gene, unlike its parent strain, L. Nucleotide sequence analysis of Ltb 1 RNA revealed two amino acid changes in the 30-kD protein: from Cys68 to Phe and from Glu133 to Lys (from L to Ltb 1). Strains with these two changes generated in vitro multiplied in tomatoes with the Tm-2 gene and induced essentially the same symptoms as those caused by Ltb 1. Strains with either one of the two changes did not overcome the resistance as efficiently as Ltb 1, although increased levels of multiplication were observed compared with the L strain. Results showed that both mutations are involved in the resistance-breaking property of Ltb 1. Sequence analysis indicated that another resistance-breaking strain and its parent strain had two amino acid changes in the 30-kD protein: from Glu52 to Lys and from Glu133 to Lys. The fact that the amino acid changes occurred in or near the well conserved regions in the 30-kD protein suggests that the mechanism of Tm-2 resistance may be closely related to the fundamental function of the 30-kD protein, presumably in cell-to-cell movement. The Plant cell. May 1989. v. 1 (5). p. 515-522. ill. Includes references. (NAL Call No.: DNAL QK725.P532).

0277

A novel strategy for the development of nematode resistant tomatoes.
Loh, W.H.T. Kut, S.A.; Evans, D.A. New York, N.Y. : Alan R. Liss. UCLA symposia on molecular and cellular biology. In the series analytic: Molecular Strategies for Crop Protection / edited by Charles J. Arntzen and Clarence Ryan. Proceedings of a Symposium held Mar 30-Apr 6, 1986, Steamboat Springs, Colorado. 1987. v. 48. p. 367-373. Includes references. (NAL Call No.: DNAL QH506.U34).

0278

Pepper cultivars on the northwestern coast of Puerto Rico.
JAUPA. Unander, D.W. Varela Ramirez, F. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. July 1988. v. 72 (3). p. 395-404. Includes references. (NAL Call No.: DNAL 8 P832J).

0279

Plant and fungal cell wall fragments activate expression of proteinase inhibitor genes for plant defense.
JCECD. Ryan, C.A. Bishop, P.D.; Graham, J.S.; Broadway, R.M.; Duffey, S.S. New York, N.Y. : Plenum Press. Journal of chemical ecology. May 1986. v. 12 (5). p. 1025-1036. ill. Includes references. (NAL Call No.: DNAL QD415.A1J6).

0280

Potassium and ammonium interactions in nutrition of tomato cultivars and mutants.
JPNUDS. Barker, A.V. Lachman, W.H. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. 1986. v. 9 (1). p. 1-21. Includes references. (NAL Call No.: DNAL QK867.J67).

0281

Purification and properties of acid phosphatase-1 from a nematode resistant tomato cultivar.
PLPHA. Paul, E.M. Williamson, V.M. Rockville, Md. : American Society of Plant Physiologists. Plant physiology. June 1987. v. 84 (2). p. 399-403. ill. Includes references. (NAL Call No.: DNAL 450 P692).

0282

Purple reign.
Pleasant, B. Emmaus, Pa. : Rodale Press, Inc. Organic gardening. July/Aug 1989. v. 36 (7). p. 47-50. ill. (NAL Call No.: DNAL S605.5.O74).

0283

Relation between resistance of tomato fruit to infiltration by Erwinia carotovora subsp. carotovora and bacterial soft rot.
PLDIDE. Bartz, J.A. St. Paul, Minn. : American Phytopathological Society. Plant disease. Feb 1991. v. 75 (2). p. 152-155. Includes references. (NAL Call No.: DNAL 1.9 P69P).

0284

Relationship between trichome density in tomato and parasitism of Heliothis spp. (Lepidoptera: Noctuidae) eggs by Trichogramma spp. (Hymenoptera: Trichogrammatidae).
EVETEX. Kauffman, W.C. Kennedy, G.G. Lanham, Md. : Entomological Society of America. During 1984 through 1986, eggs of Heliothis zea (Boddie) and H. virescens (F.) were collected from field-grown tomato accessions varying in levels of glandular trichome-based resistance to Manduca sexta (L.) (Lepidoptera: Sphingidae) and Leptinotarsa decemlinaeta (Say) (Coleoptera: Chrysomelidae). Eggs were subsequently held in the laboratory to determine levels of egg parasitism, mortality, and hatch. Parasitism of eggs by Trichogramma petiosum Riley and T. exiguum (Pinto and Platner) was greatest on the Lycopersicon esculentum (Mill) cultivar susceptible to M. sexta and was lowest on all backcross lines (L. esculentum X PI 134417) X PI 134417) and the highly resistant L. hirsutum f. glabratum C.H. Muller (PI 134417). Regression analyses indicated that trichome density accounted for the greatest porportion of variance in Trichogramma spp. parasitism of eggs. However, because the methyl ketones 2-tridecanone and 2-undecanone, which contribute to the insect resistance of PI 134417, occur in the glandular trichome tips, their effects on parasitism by Trichogramma could not be separated from the effects of trichome density in this study. Egg density, canopy volume, and number of stem terminals per plot were unrelated to the percentage of parasitism by the Trichogramma studied here. Environmental entomology. Aug 1989. v. 18 (4). p. 698-704. Includes references. (NAL Call No.: DNAL QL461.E532).

0285

Retention of resistance to Meloidogyne incognita in Lycopersicon genotypes at high soil temperature.
JONEB. Ammati, M. Thomason, I.J.; McKinney, H.E. Raleigh, N.C. : Society of Nematologists. Journal of nematology. Oct 1986. v. 18 (4). p. 491-495. ill. Includes references. (NAL Call No.: DNAL QL391.N4J62).

0286

Screening for resistance to tomato fruitworm and cabbage looper among tomato accessions.
CRPSAY. Sinha, N.K. McLaren, D.G. Madison, Wis. : Crop Science Society of America. Tomato fruitworm (Heliothis zea Boddie) and cabbage looper (Trichoplusia ni, Hubbner) are two destructive insect pests of the cultivated tomato (Lycopersicon esculentum Mill.). The present investigation was conducted to screen wild (L. hirsutum Hump and Bonpl., L. hirsutum f. glabratum Mull.) and cultivated tomato accessions for resistance to larvae of these insects, and to evaluate accession by environment (greenhouse vs. field grown plants), and by insect pest (polyphagous H. zea, vs. oligophagous T. ni) interactions for resistance. A petri dish bioassay technique was used, with larval survival on fresh foliage measured every 24 h over a 96-h period. Mean number of larvae surviving 96 h was taken as a measure of susceptibility of an accession. Number of accessions screened for resistance to H. zea and T. ni were 38 and 33, respectively. Mean larval survival on L. esculentum cultivars ranged from 32 to 52% for H. zea and from 25 to 76% for T. ni. In contrast, six field and three greenhouse grown wild accessions had less than 10% survival of H. zea larvae after 96 h. With few exceptions, all wild accessions were resistant to T. ni, with few or no larvae surviving 96 h. More than 50% of larval mortality occurred in the first 24 h, suggesting the toxic action of phytochemicals as a likely mechanism of insect resistance. Accession by plant growth environment and accession by insect species interactions were both significant. In conclusion, resistance of tomato foliage to insect pest larvae was shown, using a petri dish bioassay procedure, to differ significantly with plant genotype, insect species, and the plant growth environment. Crop science. July/Aug 1989. v. 29 (4). p. 861-868. Includes references. (NAL Call No.: DNAL 64.8 C883).

0287

Tomato (Lycopersicon esculentum) tolerance to diphenyl ether herbicides applied postemergence.
WETEE9. Masiunas, J.B. Champaign, Ill. : The Society. Weed technology : a journal of the Weed Science Society of America. Oct/Dec 1989. v. 3 (4). p. 602-607. Includes references. (NAL Call No.: DNAL SB610.W39).

0288

Tomato spotted wilt virus and western flower thrips: update.
Green, J.L. Corvallis, Or. : The Service. Ornamentals northwest - Cooperative Extension Service, Oregon State Univeristy. July/Aug 1989. v. 13 (4). p. 4-5. Includes references. (NAL Call No.: DNAL SB403.07).

0289

Tomato triumphs.
Poncavage, J. Emmaus, Pa. : Rodale Press, Inc. Organic gardening. May/June 1990. v. 37 (5). p. 46-49. ill. (NAL Call No.: DNAL S605.5.074).

0290

Transformation of tobacco, tomato, potato, and Arabidopsis thaliana using a binary Ti vector system.
PLPHA. An, G. Watson, B.D.; Chiang, C.C. Rockville, Md. : American Society of Plant Physiologists. Plant physiology. May 1986. v. 81 (1). p. 301-305. ill. Includes 24

references. (NAL Call No.: DNAL 450 P692).

0291

Using plant viruses for disease control.
HJHSA. Hamilton, R.I. Alexandria, Va. : American Society for Horticultural Science. HortScience. Paper presented at the "Symposium on Virus Diseases: A Dilema for Plant Breeders," August 7, 1984, Vancouver, British Columbia. Oct 1985. v. 20 (5). p. 848-852. Includes 69 references. (NAL Call No.: DNAL SB1.H6).

0292

Variable patterns of expression of luciferase in transgenic tobacco leaves.
PNASA. Barnes, W.M. Washington, D.C. : The Academy. A carboxyl-terminally modified firefly luciferase, encoded as a gene fusion to the neomycin phosphotransferase gene (which confers kanamycin resistance), was found to be enzymatically active for both enzymes when expressed in bacteria and in transgenic plants. A military-type starlight vision system was used to conveniently analyze the pattern of gene expression in transgenic tobacco plant leaves. Transgenic tobacco plants which expressed luciferase uniformly in all areas of the leaf, and assays for luciferin, demonstrated that luciferin rapidly penetrates all regions of a tobacco leaf in at least two dimensions. Depending on the test gene structure or, presumably, on the transferred DNA (T-DNA) insertional context, other transgenic plants were obtained that expressed luciferase with a wide range of nonuniform patterns from nominally the same cauliflower mosaic virus 35S promoter. For instance, the veins can be dark, while only the interveinal regions of the leaf lamina glow, or only the small capillary veins glow, or only the major veins glow. Local and/or systemic induction in response to wounding was also demonstrated. Proceedings of the National Academy of Sciences of the United States of America. Dec 1990. v. 87 (23). p. 9183-9187. ill. Includes references. (NAL Call No.: DNAL 500 N21P).

0293

Virus gene transfer offers hope for genetic pest control.
HARAA. Bisaro, D.M. Gardiner, W.E.; Sunter, G.; Chang, I.D. Auburn, Ala. : The Station. Highlights of agricultural research - Alabama Agricultural Experiment Station. Fall 1986. v. 33 (3). p. 8. ill. (NAL Call No.: DNAL 100 AL1H).

0294

Accumulation of lipophilic chemicals in plant cuticles: prediction from octanol/water partition coefficients.
AECTCV. Kerler, F. Schonherr, J. New York, N.Y. : Springer-Verlag. Archives of environmental contamination and toxicology. Jan 1988. v. 17 (1). p. 1-6. Includes references. (NAL Call No.: DNAL TD172.A7).

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Allelopathi effects of butternut and black walnut seedlings on tomatoes.
DePalma, N.K. Hamden, Conn. : The Association. Annual report - Northern Nut Growers Association. Aug 1983. (74th). p. 123-129. Includes references. (NAL Call No.: 94.69 N81).

0296

Desorption of chemicals from plant cuticles: evidence for asymmetry.
AECTCV. Schonherr, J. Riederer, M. New York, N.Y. : Springer-Verlag. Archives of environmental contamination and toxicology. Jan 1988. v. 17 (1). p. 13-19. ill. Includes references. (NAL Call No.: DNAL TD172.A7).

0297

Effects of farred and infrared radiation on photosynthesis (Growth of tomato, Lycopersicon esculentum, lettuce, Latuca sativa).
Sager, J.C. Horiguchi, I.; Klein, W.H. St. Joseph, Mich. : The Society. Paper - American Society of Agricultural Engineers (Microfiche collection). 1982. Paper presented at the 1982 Winter Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. 1982. (fiche no. 82-4561). 1 microfiche : ill. Includes references. (NAL Call No.: FICHE S-72).

0298

The Impact of sulfur dioxide on a processing tomato stressed with chronic ambient ozone / R.J. Oshima. -.
Oshima, R. J. Riverside, Calif. University of California, Statewide Air Pollution Research Center 1979. Submitted in fulfillment of Research Contract A7-141-30 by the Statewide Air Pollution Research Center, University of California, Riverside, under sponsorship of the California Air Resources Board. PB 81-163644. 83 leaves : ill. ; 28 cm. Bibliography: leaf 72. (NAL Call No.: QK753.S85I4).

0299

Interaction of cupric hydroxide, paraquat, and biotype of American black nightshade (Solanum americanum).
WEESA6. Bewick, T.A. Kostewicz, S.R.; Stall, W.M.; Shilling, D.G.; Smith, K. Champaign, Ill. : Weed Science Society of America. Experiments were conducted to determine the interaction between cupric hydroxide and paraquat on the control of American black nightshade. Three cupric hydroxide applications lowered paraquat toxicity with no further decrease in toxicity with six or nine cupric hydroxide applications when paraquat was applied 3 days after the last cupric hydroxide application. The interval between the last cupric hydroxide application and paraquat application was more important in decreasing paraquat toxicity than the number of cupric hydroxide applications. Three cupric hydroxide applications with a 10-day interval before paraquat application decreased paraquat toxicity less than three cupric hydroxide applications with a 3-day interval before paraquat application. Plants collected from three American black nightshade populations (Naples, Bradenton, and Gainesville) differed in their sensitivity to paraquat. I50 values, based on dry weight, showed Naples plants to be 12 times more tolerant to paraquat than Gainesville plants without cupric hydroxide, and 14 times more tolerant when cupric hydroxide was applied. More plants of the Naples biotype regrew from apical buds after paraquat treatment following cupric hydroxide application, and from axillary buds with paraquat but not cupric hydroxide treatment, than did the Bradenton biotype. Plants of the Gainesville biotype did not regrow after paraquat application, regardless of cupric hydroxide treatment. Weed science. Nov 1990. v. 38 (6). p. 634-638. Includes references. (NAL Call No.: DNAL 79.8 W41).

0300

Histology of the interactions of Paecilomyces lilacinus with Meloidogyne incognita on tomato.
JONEB. Cabanillas, E. Barker, K.R.; Daykin, M.E. Raleigh, N.C. : Society of Nematologists. Journal of nematology. July 1988. v. 20 (3). p. 362-365. ill. Includes references. (NAL Call No.: DNAL QL391.N4J62).

0301

Implication of pectic components in cell surface interactions between tomato root cells and Fusarium oxysporum f. sp. radicis-lycopersici.
PLPHA. Benhamou, N. Chamberland, H.; Pauze, F.J. Rockville, Md. : American Society of Plant Physiologists. Aplysia gonad lectin, a polygalacturonic acid-binding lectin isolated from the sea mollusc Aplysia depilans, was complexed to colloidal gold and used for localizing polygalacturonic-acid-containing molecules in tomato root tissues infected with Fusarium oxysporum f. sp. radicis-lycopersici (FORL). Colonization of host tissues by FORL was associated with striking wall modifications including disruption and even loss of middle lamellae. According to the labeling pattern observed in host wall areas adjacent to fungal penetration channels, it is likely that FORL pectolytic enzymes act through localized wall degradation. The release of polygalacturonic acid-rich wall fragments and the accumulation of polygalacturonic acid-containing molecules in some altered phloem cells were frequently observed and considered to be specific host reactions to fungal attack. The heavy deposition of such molecules at strategic sites such as wall oppositions and intercellular spaces provides support to their implication in the plant defense system. The possible interrelation between polygalacturonic acid-containing molecules and other polymers such as lignin and phenolic compounds remains to be investigated further. The role of these molecules in host-pathogen interactions is discussed in relation to plant defense. Plant physiology. Apr 1990. v. 92 (4). p. 995-1003. ill. Includes references. (NAL Call No.: DNAL 450 P692).

0302

Ultrastructural changes during chilling stress.
Abe, K. Boca Raton, Fla. : CRC Press, 1990. Chilling injury of horticultural crops / editor, Chien Yi Wang. p. 71-84. ill. Includes references. (NAL Call No.: DNAL SB319.5.C48).

0303

Effect of atmospheric CO2 concentration and root-zone temperature on growth, mineral nutrition, and nitrate reductase activity of greenhouse tomato.
JOSHB. Yelle, S. Gosselin, A.; Trudel, M.J. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Nov 1987. v. 112 (6). p. 1036-1040. Includes references. (NAL Call No.: DNAL 81 SO12).

0304

Effect of ion concentration and sodium:calcium ratio of a nutrient solution on Phytophthora root rot of tomato and zoospore motility and viability of Phytophthora parasitica.
PHYTA. Bouchibi, N. Van Bruggen, A.H.C.; MacDonald, J.D. St. Paul, Minn. : American Phytopathological Society. In two sets of greenhouse experiments, the effect of four Na:Ca equivalent ratios (0, 1, 5, and 10) on Phytophthora root rot of tomato was studied at two ionic concentrations (2.5 vs. 25 meq L-1 or 25 vs. 50 meq L-1) of a modified Hoagland's solution. Two weeks after planting, the plants were either kept at the same ionic concentration or were shifted from low to high or high to low concentration, and half of the plants in each treatment were inoculated with zoospores of Phytophthora parasitica. The percentage of root rot was assessed visually 2 wk after inoculation. Root rot severity increased significantly with increasing Na:Ca ratios at ion concentrations of 2.5 and 25 meq L-1 before or after inoculation. Salt stress at 50 meq L-1 before inoculation increased root rot. Salt stress at 50 meq L-1 after inoculation reduced root rot caused by an isolate of P. parasitica originating from nonsaline soil, particularly at higher Na:Ca ratios of 5 and 10. Root rot caused by an isolate originating from saline soil was not reduced. Percentages of motile and germinated zoospores decreased in vitro, and those of encysted and lysed zoospores increased with increasing salt concentrations and Na:Ca ratios. These effects were more pronounced for the isolate from nonsaline soil than for the isolate from saline soil. The isolate from saline soil lost its relative salt tolerance after 2 mo in culture. Inoculation of tomato seedlings with this isolate after 2 mo in culture resulted in root rot severity similar to that caused by the isolate from nonsaline soil when salt stress was applied during and after inoculation. Phytopathology. Dec 1990. v. 80 (12). p. 1323-1329. Includes references. (NAL Call No.: DNAL 464.8 P56).

0305

Effect of magnesium fertilization on yield and leaf composition of tomato plants.
JPNUDS. Elemin, O.M. Wilcox, G.E. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. 1985. v. 8 (11). p. 999-1012. Includes 22 references. (NAL Call No.: DNAL QK867.J67).

0306

Effect of soil management practices on yield and foliar nutrient concentration of dry beans, carrots, and tomatoes.
Eggert, F.P. New York : Praeger, 1983. Environmentally sound agriculture : selected papers, 4th conference, International Federation of Organic Agriculture Movements, Cambridge, Mass., August 18-20, 1982 / edited by William Lockeretz. p. 247-259. Includes references. (NAL Call No.: DNAL S604.5.E58).

0307

Effect of titanium on the activity of lipoxygenase.
JPNUDS. Daood, H.G. Biacs, P.; Feher, M.; Hajdu, F.; Pais, I. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. May 1988. v. 11 (5). p. 505-516. Includes references. (NAL Call No.: DNAL QK867.J67).

0308

Effects of boron stress on copper enzyme activity in tomato (Deficiency).
Brown, J.C. AR-BARC. New York, Marcel Dekker. Journal of plant nutrition. 1979. v. 1 (1). p. 39-53. ill. 21 ref. (NAL Call No.: QK867.J67).

0309

Effects of excess levels of a polymer as a soil conditioner on yields and mineral nutrition of plants.
SOSCAK. Wallace, A. Wallace, G.A.; Abouzamzam, A.M. Baltimore, Md. : Williams & Wilkins. Soil science. May 1986. v. 141 (5). p. 377-380. Includes references. (NAL Call No.: DNAL 56.8 SO3).

0310

Effects of lime type on yields and leaf concentrations of several vegetable crops as related to soil test levels.
JOSHB. Smith, C.B. Demchak, K.T.; Ferretti, P.A. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Nov 1986. v. 111 (6). p. 837-840. Includes references. (NAL Call No.: DNAL 81 SO12).

0311

Effects of magnesium on tobacco mosaic virus-infected eggplants.
Seaker, E.M. Bergman, E.L.; Romaine, C.P. Alexandria, Va., The Society. Journal of the American Society for Horticultural Science. Jan 1982. v. 107 (1). p. 162-166. Includes 22 ref. (NAL Call No.: 81 SO12).

0312

Effects of nitrogen and phosphorus fertilizer on yield and leaf content of trickle irrigated chile peppers (New Mexico).
Panpruik, P. McCaslin, B.D.; Wierenga, P.J. Las Cruces : The Station. Research report - New Mexico, Agricultural Experiment Station. June 1982. June 1982. (480). 5 p. 17 ref. (NAL Call No.: 100 N465R).

0313

Interaction between Glomus mosseae and Erwinia carotovora and its effects on the growth of tomato plants.
NEPHA. Garcia-Garrido, J.M. Dcampo, J.A. New York, N.Y. : Cambridge University Press. The New phytologist. Dec 1988. v. 110 (4). p. 551-555. Includes references. (NAL Call No.: DNAL 450 N42).

0314

Iron stress response in tomato affected by potassium and renewing nutrient solutions.
JPNUDS. Jolley, V.D. Brown, J.C. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. 1985. v. 8 (6). p. 527-541. Includes 14 references. (NAL Call No.: DNAL QK867.J67).

0315

Iron-stress response mechanism and iron uptake in iron-efficient and -inefficient tomatoes and soybeans treated with cobalt.
JPNUDS. Blaylock, A.D. Jolley, V.D.; Brown, J.C.; Davis, T.D.; Walser, R.H. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. 1985. v. 8 (2). p. 163-176. Includes 29 references. (NAL Call No.: DNAL QK867.J67).

0316

Nitrogen fertigation of greenhouse-grown tomato.
CSOSA2. Papadopoulos, I. New York, N.Y. : Marcel Dekker. Communications in soil science and plant analysis. Aug 1987. v. 18 (8). p. 897-907. Includes references. (NAL Call No.: DNAL S590.C63).

0317

Plants can utilize iron from Fe-N,N′-DI-(2-hydroxybenzoyl)-ethylenediamine--N,N′-diacetic acid, a ferric chelate with 10(6) greater formation constant than Fe-EDDHA.
JPNUDS. Chaney, R.L. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. Paper presented at the "Fourth International Symposium on Iron Nutrition and Interactions in Plants," July 6-9, 1987, University of New Mexico, Albuquerque. June/Nov 1988. v. 11 (6/11). p. 1033-1050. ill. Includes references. (NAL Call No.: DNAL QK867.J67).

0318

Potassium and ammonium interactions in nutrition of tomato cultivars and mutants.
JPNUDS. Barker, A.V. Lachman, W.H. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. 1986. v. 9 (1). p. 1-21. Includes references. (NAL Call No.: DNAL QK867.J67).

0319

Potassium effect on iron stress in tomato. I. The effect on pH, Fe-reductase and chlorophyll.
JPNUDS. Szlek, M. Miller, G.W.; Welkie, G.W. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. 1990. v. 13 (2). p. 215-229. ill. Includes references. (NAL Call No.: DNAL QK867.J67).

0320

Riboflavin excretion from roots of iron-stressed and reciprocally grafted tobacco and tomato plants.
JPNUDS. Welkie, G.W. Miller, G.W. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. Paper presented at the "Fourth International Symposium on Iron Nutrition and Interactions in Plants," July 6-9, 1987, University of New Mexico, Albuquerque. June/Nov 1988. v. 11 (6/11). p. 691-700. Includes references. (NAL Call No.: DNAL QK867.J67).

0321

A role for potassium in the use of iron by plants.
JPNUDS. Jolley, V.D. Brown, J.C.; Blaylock, M.J.; Camp, S.D. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. Paper presented at the "Fourth International Symposium on Iron Nutrition and Interactions in Plants," July 6-9, 1987, University of New Mexico, Albuquerque. June/Nov 1988. v. 11 (6/11). p. 1159-1175. Includes references. (NAL Call No.: DNAL QK867.J67).

0322

Activity of volatile compounds in glandular trichomes of Lycopersicon species against two insect herbivores.
JCECD. Lin, S.Y.H. Trumble, J.T.; Kumamoto, J. New York, N.Y. : Plenum Press. Journal of chemical ecology. Apr 1987. v. 13 (4). p. 837-850. Includes references. (NAL Call No.: DNAL QD415.A1J6).

0323

Allelochemicals from Palmer amaranth, Amaranthus palmeri S. Wats.
JCECD. Bradow, J.M. Connick, W.J. Jr. New York, N.Y. : Plenum Press. Journal of chemical ecology. Jan 1987. v. 13 (1). p. 185-202. Includes references. (NAL Call No.: DNAL QD415.A1J6).

0324

Allelopathi effects of butternut and black walnut seedlings on tomatoes.
DePalma, N.K. Hamden, Conn. : The Association. Annual report - Northern Nut Growers Association. Aug 1983. (74th). p. 123-129. Includes references. (NAL Call No.: 94.69 N81).

0325

Allelopathic effects of Lycopodium flabelliforme sporophytes (Effects on tomato and radishes).
Macuszek, J.M. Zimmerman, U.D.; Ebinger, J.E. Springfield, Ill., The Academy. Transactions of the Illinois State Academy of Science. 1980. v. 73 (1). p. 92-97. 10 ref. (NAL Call No.: 500 IL6).

0326

Alternation by high temperature of auxin and gibberellin concentrations in the floral buds, flowers, and young fruit of tomato.
HJHSA. Kuo, C.G. Tsai, C.T. Alexandria, Va. : American Society for Horticultural Science. HortScience. Dec 1984. v. 19 (6). p. 870-872. Includes 18 references. (NAL Call No.: DNAL SB1.H6).

0327

Association of epicuticular sugars with aphid resistance in hybrids with wild tomato.
JOSHB. Goffreda, J.C. Steffens, J.C.; Mutschler, M.A. Alexandria, Va. : The Society. Behavioral studies have shown that aphid resistance in Lycopersicon pennelli (Corr.) D'Arcy is due to the presence of sugar esters in glandular exudate of the type IV trichomes. In this study, various methods for the estimation of epicuticular sugar ester concentrations were examined. There was a significant negative relationship between the concentration of sugar esters on the leaf and the level of potato aphid infestation in a segregating L. esculentum X L. pannellii F2 population. Selection for sugar ester accumulation should be an efficient selection technique for the aphid resistance of L. pennellii and other species that synthesize epicuticular sugar esters. Journal of the American Society for Horticultural Science. Jan 1990. v. 115 (1). p. 161-165. Includes references. (NAL Call No.: DNAL 81 SO12).

0328

Calcium translocation and tomato plant and fruit responses to molybdenum and daminozide.
HJHSA. Kheshem, S.A. Kochan, W.J.; Boe, A.A.; Everson, D.O. Alexandria, Va. : American Society for Horticultural Science. HortScience. June 1988. v. 23 (3). p. 582-584. Includes references. (NAL Call No.: DNAL SB1.H6).

0329

Capillary gas chromatograms of leaf volatiles. A possible aid to breeders for pest and disease resistance (Tests with tomato cultivars).
Andersson, B.A. Holman, R.T.; Lundgren, L.; Stenhagen, G. Washington, D.C., American Chemical Society. Journal of agricultural and food chemistry. Sept/Oct 1980. v. 28 (5). p. 985-989. ill. 10 ref. (NAL Call No.: 381 J8223).

0330

The cDNA of cucumber mosaic virus-associated satellite RNA has in vivo biological properties.
BBRC. Jacquemond, M. Lauquin, G.J.M. Duluth, Minn. : Academic Press. Biochemical and biophysical research communications. Feb 29, 1988. v. 151 (1). p. 388-395. ill. Includes references. (NAL Call No.: DNAL 442.8 B5236).

0331

Chilling sensitivity of tomato fruit in relation to ripening and senescence.
JOSHB. Autio, W.R. Bramlage, W.J. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Mar 1986. v. 111 (2). p. 201-204. Includes 29 references. (NAL Call No.: DNAL 81 SO12).

0332

Combined effects of peroxyacetyl nitrate and ozone on growth of four tomato cultivars.
JEVQAA. Temple, P.J. Taylor, O.C. Madison, Wis. : American Society of Agronomy. Journal of environmental quality. July/Sept 1985. v. 14 (3). p. 420-424. Includes references. (NAL Call No.: ONAL QH540.J6).

0333

Determination of plant proteinase inhibitors by agar gel radial diffusion assay (Important as defenses against plant predators and pathogens, Lycopersicon esculetum, Datura stramonium, tobacco hornworm, Manduca sexta).
Shukle, R.H.EVETB. Murdock, L.L. College Park : Entomological Society of America. Environmental entomology. Feb 1983. v. 12 (1). p. 255-259. ill. Includes references. (NAL Call No.: QL461.E532).

0334

Differential activation of expression of a suberization-associated anionic peroxidase gene in near-isogenic resistant and susceptible tomato lines by elicitors of Verticillium albo-atratrum.
PLPHA. Mohan, R. Kolattukudy, P.E. Rockville, Md. : American Society of Plant Physiologists. We tested whether the expression of the suberization-associated anionic peroxidase gene is involved in the timely appearance of the vascular suberized coating involved in the resistance of a tomato line to Verticillium albo-atrum. The mRNA for this peroxidase appeared at a higher level one day earlier in wound-healing fruits of the resistant tomato line than in a near-isogenic susceptible line. Cell cultures from the resistant line, when treated with low levels (nanograms per milliliter) of fungal elicitor, generated the peroxidase mRNA and this apparent activation of the peroxidase gene expression could be detected in minutes, whereas the cells from the susceptible line hardly responded. Plant physiology. Jan 1990. v. 92 (1). p. 276-280. ill. Includes references. (NAL Call No.: ONAL 450 P692).

0335

Diurnal chilling sensitivity and desiccation in seedlings of tomato.
JOSHB. King, A.I. Reid, M.S. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Sept 1987. v. 112 (5). p. 821-824. Includes references. (NAL Call No.: DNAL 81 SD12).

0336

Duration of CO2 enrichment influences growth, yield, and gas exchange of two tomato species.
JOSHB. Yelle, S. Beeson, R.C. Jr.; Trudel, M.J.; Gosselin, A. Alexandria, Va. : The Society. Lycopersicon esculentum Mill. cv. Vedettos and Lycopersicon chmielewskii Rick, LA 1028, were exposed to two CO2 concentrations (330 or 900 micromoles.m-3) for 10 weeks. The elevated CO2 concentration increased the relative growth rate (RGR) of L. esculentum and L. chmielewskii by 18% and 30%, respectively, after 2 weeks of treatment. This increase was not maintained as the plant matured. Net assimilation rate (NAR) and specific leaf weight (SLW) were always higher in CO2-enrighed plants, suggesting that assimilates were preferentially accumulated in the leaves as reserves rather than contributing to leaf expansion. Carbon dioxide enrichment increased early and total yields of L. esculentum by 80% and 22%, respectively. Carbon exchange rates (CER) increased during the first few weeks, but thereafter decreased as tomato plants acclimated to high atmospheric CO2. The relatively constant concentration of internal CO2 with time suggests that reduced stomatal conductance under high CD2 does not explain lower photosynthetic rates of tomato plants grown under high atmospheric CO2 concentrations. Leaves 5 and 9 responded equally to high CO2 enrichment throughout plant growth. Consequently, acclimation of CO2-enriched plants was not entirely due to the age of the tissue. After 10 weeks of treatment, leaf 5, which had been exposed to high CO2 for only 10 days, showed the greatest acclimation of the experiment. We conclude that the duration of exposure of the whole plant to elevated CO2 concentration, rather than the age of the tissue, governs the acclimation to high CO2 concentrations. Journal of the American Society for Horticultural Science. Jan 1990. v. 115 (1). p. 52-57. Includes references. (NAL Call No.: ONAL 81 SO12).

0337

Effect of atmospheric CO2 concentration and root-zone temperature on growth, mineral nutrition, and nitrate reductase activity of greenhouse tomato.
JOSHB. Yelle, S. Gosselin, A.; Trudel, M.J. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Nov 1987. v. 112 (6). p. 1036-1040. Includes references. (NAL Call No.: ONAL 81 SO12).

0338

The effect of cytogen, a bioregulator, on fecundity and yields of curcurbits, peppers, and tomatoes.
Mayeux, J.V.PPGGD. Beach, R.; Illum, V.L. Lake Alfred : The Society. Proceedings annual meeting - Plant Growth Regulator Society of America. 1983. 1983. (10th). p. 319-323. ill. (NAL Call No.: SB128.P5).

0339

Effect of diurnal temperature variation on early yield and fruit size of greenhouse tomato.
AAREEZ. Gent, M.P.N. New York, N.Y. : Springer. Tomato plants were grown in a greenhouse in the northeast U.S. at a mean temperature of 17 degrees celsius. Early yield and fruit size were compared for plants grown under a 3 or a 9 degrees celsius day-night temperature variation. Plants were grown in ambient or in carbon dioxide enriched air and in plantings that produced ripe fruit in winter and spring. The 9 degrees celsius diurnal temperature variation accelerated fruit growth and ripening, resulting in greater early yield. It did not inhibit fruit set or result in a greater percentage of misshapen fruit. In spring, carbon dioxide enrichment increased fruit growth more under the 9 than 3 degrees celsius diurnal temperature variation. Under the 9 degrees celsius diurnal temperature variation, carbon dioxide enrichment prevented the reduction in fruit weight seen under ambient carbon dioxide. The weight per fruit and percentage of large fruit were lower in spring than winter, and due to their effect on fruit size, the growth regimens affected the yield of high quality fruit more in spring than in winter. Applied agricultural research. 1988. v. 3 (5). p. 257-263. Includes references. (NAL Call No.: DNAL S539.5.A77).

0340

Effect of gibberellic acid and seed rates on pepper seed germination in aerated water columns (Capsicum annuum).
Sosa-Coronel, J. Motes, J.E. Alexandria, Va., The Society. Journal of the American Society for Horticultural Science. Mar 1982. v. 107 (2). p. 290-295. ill. Includes 14 ref. (NAL Call No.: 81 S012).

0341

Effect of growth regulators on the height of ornamental eggplant, Solanum melongena L.
Sanderson, K.C. Martin, W.C. Jr.; Reed, R.B. New Brunswick, N.J. : Plant Growth Regulator Society of America. Quarterly - PGRSA. Jan/Mar 1989. v. 17 (1). p. 10-14. Includes references. (NAL Call No.: DNAL QK745.P55).

0342

Effect of inhibitors and stimulators of ethylene production on gall development in Meloidogyne javanica-infected tomato roots.
JONEB. Glazer, I. Apelbaum, A.; Orion, D. Raleigh, N.C. : Society of Nematologists. Journal of nematology. Apr 1985. v. 17 (2). p. 145-149. Includes 25 references. (NAL Call No.: DNAL QL391.N4J62).

0343

Effect of light on the response of tomato (Lycopersicon esculentum) and two weed species (jimsonweed Datura stramonium, velvetleaf, Abutilon theophrasti).
Pritchard, M.K. Warren, G.F. Champaign, Ill., Weed Science Society of America. Weed science. Mar 1980. v. 28 (2). p. 186-189. ill. 16 ref. (NAL Call No.: 79.8 W41).

0344

Effect of photoperiod, temperature, and relative humidity on chloride uptake of plants exposed to salt spray (Phaseolus vulgaris, kidney beans, Lycopersicon esculentum, tomatoes, injury).
Simini, M. Leone, I.A. St. Paul, Minn., American Phytopathological Society. Phytopathology. Sept 1982. v. 72 (9). p. 1163-1166. 32 ref. (NAL Call No.: 464.8 P56).

0345

Effect of root container size and location of production on growth and yield of tomato transplants.
JOSHB. Weston, L.A. Zandstra, B.H. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. July 1986. v. 111 (4). p. 498-501. Includes references. (NAL Call No.: DNAL 81 S012).

0346

Effect of seed treatment and planting method on tabasco pepper.
JOSHB. Sundstrom, F.J. Reader, R.B.; Edwards, R.L. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. July 1987. v. 112 (4). p. 641-644. Includes references. (NAL Call No.: DNAL 81 S012).

0347

Effect of soaking seed of some vegetables before sowing.
AGJOAT. Knott, J.E. Madison, Wis. : American Society of Agronomy. Soaking seed of beet, cabbage and tomato in shallow distilled water for 24 hours shows no definite influence on the later growth and yield, if the plants from the soaked and dry seed appear above ground at the same time. Simultaneous germination is essential before conclusions can be drawn from treatments applied to the seed which cause a difference in time of germination. The stimulating advantage claimed for soaking may be due simply to the initial headstart of the soaked seed at a time when the plant is at its greatest efficiency. Soaking for twenty-four hours affected the length of the germination period differently with the various crops. Agronomy journal. Jan 1925. v. 17 (1). p. 49-54. (NAL Call No.: DNAL 4 AM34P).

0348

Effect of supplementary lighting on transplant growth and yield of greenhouse tomato.
HJHSA. Boivin, C. Gosselin, A.; Trudel, M.J. Alexandria, Va. : American Society for Horticultural Science. HortScience. Dec 1987. v. 22 (6). p. 1266-1268. Includes references. (NAL Call No.: DNAL SB1.H6).

0349

Effects of barnyardgrass (Echinochloa crus-galli) on growth, yield, and nutrient status of transplanted tomato (Lycopersicon esculentum).
WEESA6. Bhowmik, P.C. Reddy, K.N. Champaign, Ill. : Weed Science Society of America. Field studies were conducted to determine the effects of various barnyardgrass populations on growth, yield, and nutrient concentration of transplanted 'Jetstar' tomato. Barnyardgrass densities at 16, 32, and 64 plants/m tomato row were tested in 1982 and 1983. Barnyardgrass shoot fresh weights/unit area increased as density increased. Fresh weight of barnyardgrass shoots ranged from 17 100 kg/ha at 16 plants/m of row to 35 500 kg/ha at 64 plants/m of row. At the vegetative stage, tomato shoot dry weight was unaffected by barnyardgrass. As crop growth progressed, tomato shoot dry weight decreased at all barnyardgrass densities. Season-long interference of barnyardgrass reduced marketable tomato fruit number and fruit weight at all densities compared to weed-free plots. Reductions in marketable fruit weight ranged from 26% to 16 plants/m row to 84% at 64 plants/m row. In 1982, concentrations of N, P, K, Ca, and Mg in tomato shoots were unaffected by season-long interference of barnyardgrass at all densitites. However, in 1983, concentrations of N and K decreased and concentration of P increased in tomato leaves as the density of barnyardgrass increased. Concentrations of Ca and Mg in tomato leaves were unaltered by barnyardgrass density. Weed science. Nov 1988. v. 36 (6). p. 775-778. Includes references. (NAL Call No.: DNAL 79.8 W41).

0350

Effects of ethephon and daminozide on floral abscission and yield of single-harvest tomatoes (Cultivars, Mesilla valley, New Mexico).
Cotter, D.J. Locke, M.C. Las Cruces : The Station. Research report - New Mexico, Agricultural Experiment Station. June 1981. June 1981. (446). 8 p. 22 ref. (NAL Call No.: 100 N465R).

0351

Effects of farred and infrared radiation on photosynthesis (Growth of tomato, Lycopersicon esculentum, lettuce, Latuca sativa).
Sager, J.C. Horiguchi, I.; Klein, W.H. St. Joseph, Mich. : The Society. Paper - American Society of Agricultural Engineers (Microfiche collection). 1982. Paper presented at the 1982 Winter Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. 1982. (fiche no. 82-4561). 1 microfiche : ill. Includes references. (NAL Call No.: FICHE S-72).

0352

Effects of phenolic acids and ragweed parthenium (Parthenium hysterophorus) extracts on tomato (Lycopersicon esculentum) growth and nutrient and chlorophyll content.
WEESA6. Mersie, W. Singh, M. Champaign, Ill. : Weed Science Society of America. Abstract: The effects of caffeic, vanillic, p-coumaric, chlorogenic, and ferulic acids, ragweed parthenium (Parthenium hysterophorus L. ~ PTNHY) residue and extracts on the growth, ion uptake, and chlorophyll content of 3-week-old tomatoes (Lycopersicon esculentum Mill. 'Walter') grown in the greenhouse were determined. Vanillic, p-coumaric, chlorogenic, and ferulic acid at 10(-3) M and parthenium extract at 0.5% (w/v) significantly reduced tomato root and shoot dry weight. Ragweed parthenium residue at 0.5% (w/w) and extract at 0.5% (w/v) significantly reduced tomato and shoot dry weight. Leaf nitrogen content was reduced by phenolic acids at (10(-3)M) and ragweed parthenium extract (0.5%). Phosphorus content was reduced by allphenolic acids at 10(-3) M and ragweed parthenium extract at 0.5% (w/v). In addition, p-coumaric and ferulic acids at 10(-4) M reduced phosphorus content. No consistent relationship between chlorophyll content and tomato growth reduction was observed. Weed science. May 1988. v. 36 (3). p. 278-281. Includes references. (NAL Call No.: DNAL 79.8 W41).

0353

The effects of phosphate on early growth and maturity.
AGJOAT. Noll, C.F. Madison, Wis. : American Society of Agronomy. A number of investigators have found that the use of phosphates produced a more rapid growth of the roots of seedlings and several have claimed that, in the case of small grains, phosphates promote tillering. Russell states that in England superphosphates cause rapid early growth of turnips and swedes. The evidence is not conclusive that these effects from phosphate are more pronounced than from the other fertilizer elements where the latter are the limiting factors for crop yields. Fertilizer tests have quite generally,

if not always, shown that the use of phosphatic fertilizers induces earlier ripening of the grain crops on soils low in phosphorus. Similar effects have been noted with cabbage and with cotton. In the case of tomatoes, the use of phosphates at the Pennsylvania Experiment Station, has been accompanied by a much greater growth of stalk and larger total yield, but also by later ripening. The effects of different phosphatic fertilizers seem to vary with the availability of the phosphates as shown by the responses in crop yeilds. However, at the Ohio Experiment Station, acid phosphate had more influence in promoting earliness than either steamed bonemeal or basic slag, altho all these phosphates gave approximately the same yield. Applied in moderate rates, the soluble phosphates, as a rule, have shown a more pronounced influence in hastening maturity than the same quantity of phosphoric acid in rock phosphate, the influence in earliness varying in degree with the response in yield. Increasing the rates of application of phosphatic fertilizers above the needs of the crop as indicated by yields has not been accompanied by further increases in earliness. Though phosphates show a more marked influence in promoting earliness than the other fertilizer elements, yet moderate amounts of nitrogen and potash, where these are needed for the production of crops, have a similar effect. Lime, also, if applied to soils having a high lime requirement, may induce earli. Agronomy journal. Mar 1923. v. 15 (3). p. 87-99. (NAL Call No.: DNAL 4 AM34P).

0354

Effects of plant growth regulators and their interactions on respiration, ethylene evolution, color development, peroxidase activity, and peroxidase isoenzyme pattern of detached tomatoes / by Shue-Cheng Lin. -.
Lin, Shue-Cheng, 1944-. 1978. Thesis (Ph.D.)--University of Florida, 1978. Photocopy. Ann Arbor, Mich. : University Microfilms International, 1980. xiv, 124 leaves ; 21 cm. Bibliography: leaves 109-122. (NAL Call No.: DISS 79-13,297).

0355

Electrolyte leakage, lipoxygenase, and lipid peroxidation induced in tomato leaf tissue by specific and nonspecific elicitors from Cladosporium fulvum.
PLPHA. Peever, T.L. Higgins, V.J. Rockville, Md. : American Society of Plant Physiologists. Glycoprotein nonspecific elicitor (NSE) and a specific elicitor preparation from intercellular fluids (SE) of tomato (Lycopersicon esculentum Mill. cv Bonny Best or Potentate) infected with race 2.4.5 of Cladosporium fulvum Cooke syn. Fulvia fulva (Cooke) Ciferri were injected into cv Sonatine (resistant to race 2.4.5) to compare electrolyte leakage, lipoxygenase activity, and lipid peroxidation induced in response to these elicitors. Increased electrolyte leakage was induced by NSE or SE; the leakage due to NSE but not to SE was inhibited by the nonsteroidal antiinflammatory drug (NSAID) piroxicam. Under normal photoperiod conditions, higher levels of lipoxygenase activity were detected 6 hours after injection with either elicitor. This activity peaked by 12 hours with both elicitors and declined to control levels by 24 hours when visible necrosis could be detected. Both NSE and SE-induced lipoxygenase was inhibited by pioxicam in vitro. Lipid peroxidation in elicitor-treated tissue was also assayed at 6, 12, and 24 hours after injection using the TBA test for malonaldehyde. Increased peroxidation was detected in response to NSE or SE at 12 hours with similar values obtained at 24 hours. With plants incubated in the dark, lipoxygenase, and lipid peroxidation were similarly induced in SE-injected tissue whereas necrosis induction by SE was light dependent. Plant physiology. July 1989. v. 90 (3). p. 867-875. Includes references. (NAL Call No.: DNAL 450 P692).

0356

Elements in major raw agricultural crops in the United States. 3. Cadmium, lead, and eleven other elements in carrots, field corn, onions, rice, spinach, and tomatoes.
JAFCAU. Wolnik, K.A. Fricke, F.L.; Capar, S.G.; Meyer, M.W.; Satzger, R.D.; Bonnin, E.; Gaston, C.M. Washington, D.C. : American Chemical Society. Journal of agricultural and food chemistry. Sept/Oct 1985. v. 33 (5). p. 807-811. Includes references. (NAL Call No.: DNAL 381 J8223).

0357

Emergence, growth, and freezing tolerance of tomato seedlings grown from uniconazole-treated seed.
HJHSA. Davis, T.D. Ells, J.E.; Walser, R.H. Alexandria, Va. : American Society for Horticultural Science. HortScience. Mar 1990. v. 25 (3). p. 312-313. Includes references. (NAL Call No.: DNAL SB1.H6).

0358

Ethylene evolution and polyamine accumulation by tomato subjected to interactive stresses of ammonium toxicity and potassium deficiency.
JOSHB. Corey, K.A. Barker, A.V. Alexandria, Va. : The Society. Tomato plants (Lycopersicon esculentum Mill. 'Heinz 1350', yellow-green-5, and neglecta-1) were grown in sand culture with 15mM NH_4^+ or NO_3^- and with K^+ varying from 0 to 8 mM. Other nutrients were provided at the concentrations of Hoagland's solution. The medium supplying NH_4^+ was buffered with $CaCO_3$ (pH 6.9) or was unbuffered (pH 3.4). Silver ions (0.01 micromole) were incorporated in the nutrient solution in one experiment. Ammonium nutrition relative to NO_3^- nutrition elevated rates of ethylene evolution from all genotypes, but yg-5 and neg-1 showed resistance to NH_4^+ toxicity and exhibited relatively low ethylene

evolution. Ethylene evolution declined as K+ supply increased. Accelerated rates of ethylene evolution did not occur at tissue K+ concentrations greater than 10 g/kg of the dry weights of shoots with NO3- nutrition, but higher K+ levels were required with NH4+ nutrition. Putrescine concentrations in leaves of 'Heinz 1350' supplied with NH4+ were 2 to 5 times greater than in leaves of plants supplied with NO3-. Potassium deficiency increased putrescine accumulation regardless of N form. Spermidine concentrations in leaves of plants supplied with NH4+ were lower than in those supplied with NO3-, whereas spermine concentrations were unaffected by treatments. 'Heinz 1350' grown in (NH4+)-based nutrient solutions with 0.01 micromole Ag+ had low rates of ethylene evolution and developed few symptoms of NH4+ toxicity. Quantities of ethylene and putrescine produced by tomato genotypes susceptible to the nutritional stresses were linked directly to the degree of stress imposed, and symptoms of NH4+ toxicity were related to increased ethylene synthesis. Journal of the American Society for Horticultural Science. July 1989. v. 114 (4). p. 651-655. Includes references. (NAL Call No.: DNAL 81 SO12).

0359

Evidence for involvement of phytochrome in tumor development in plants.
PLPHA. Morrow, R.C. Tibbitts, T.W. Rockville, Md. : American Society of Plant Physiologists. Plant physiology. Dec 1988. v. 88 (4). p. 1110-1114. ill. Includes references. (NAL Call No.: DNAL 450 P692).

0360

Expression of A chimeric polygalacturonase gene in transgenic Rin (ripening inhibitor) tomato fruit.
Giovannoni, J.J. DellaPenna, D.; Lashbrook, C.C.; Bennett, A.B.; Fischer, R.L. New York, N.Y. : Alan R. Liss. Plant biology. In the series analytic: Horticultural Biotechnology / edited by A.B. Bennett and S.D. O'Neill. Proceedings of an International Symposium, August 21-23, 1989, Davis, California. 1990. v. 11. p. 217-227. Includes references. (NAL Call No.: DNAL QH301.P535).

0361

Factors affecting harvest date of tomato grown under floating row cover.
AAREEZ. Gent, M.P.N. New York, N.Y. : Springer. Floating row covers trap the heat from solar radiation, warm covered plants and should accelerate plant development. However, in three years of field trials in Connecticut USA (Latitude 42N), the mid-harvest date for tomato (Lycopersicon esculentum Mill.) planted in the spring and grown under spun bonded polypropylene floating row cover was rarely earlier than for tomato grown in the open. When planted on 23 May, the mid-harvest date was delayed up to 9 days by covering plants for one month after transplant. The mid-harvest date was also delayed when planted on 20 April and covered for two months. Under row cover, daily maximum plant temperatures ranged from 3 to 10 degrees C (5 to 18 degrees F) warmer than in the open, depending primarily on irradiance. In June, mean daytime temperatures under row cover were often above 26 degrees C (78 degrees F), the optimum for growth and development of tomato under controlled conditions. Although growing degree days, the accumulation of temperature above 10 degrees C (50 degrees F), predicted the variation in time from transplant to mid-harvest for plants grown in the open, only physiological days, which assumed development slows at mean daytime temperatures above 26 degrees C, predicted the slow ripening of tomato grown under row cover in June. Applied agricultural research. Spring 1990. v. 5 (2). p. 112-118. Includes references. (NAL Call No.: DNAL S539.5.A77).

0362

Fate and levels of 14C ring-labeled acifluorfen applied to tomato plants.
JPFCD2. Stokes, J.D. Archer, T.E.; Winterlin, W.L. New York, N.Y. : Marcel Dekker. Journal of environmental science and health : Part B : Pesticides, food contaminants, and agricultural wastes. Feb 1990. v. 25 (1). p. 55-66. Includes references. (NAL Call No.: DNAL TD172.J61).

0363

Field emergence of tomato, carrot, and onion seeds primed in an aerated salt solution.
JOSHB. Haigh, A.M. Barlow, E.W.R.; Milthorpe, F.L.; Sinclair, P.J. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Sept 1986. v. 111 (5). p. 660-664. Includes references. (NAL Call No.: DNAL 81 SO12).

0364

Function of rhizodermal transfer cells in the Fe stress response mechanism of Capsicum annuun L.
PLPHA. Landsberg, E.C. Rockville, Md. : American Society of Plant Physiologists. Plant physiology. Oct 1986. v. 82 (2). p. 511-517. ill. Includes references. (NAL Call No.: DNAL 450 P692).

0365

Further observations on the toxicity of black walnut on tomatoes and some other plants (Juglans nigra).
MacDaniels, L.H. (s.l.), The Association. Annual report - Northern Nut Growers Association. 1980. 1980. (71st). p. 112-126. ill. Includes 8 ref. (NAL Call No.: 94.69 N81).

0366

Gibberellin antagonizing the nematicidal effects on two hydrolyzing enzymes, protease and invertase, and related chemical metabolites in Lycopersicon esculentum and Solanum melongena.
PCBPB. Agarwal, M.L. Tayal, M.S. Duluth, Minn. : Academic Press. Pesticide biochemistry and physiology. July 1987. v. 28 (3). p. 297-300. Includes references. (NAL Call No.: DNAL SB951.P49).

0367

Growing short sturdy tomato seedlings to facilitate automated handling.
AAREEZ. Batal, K.M. Smittle, D.A.; Brewer, H.L.; Jones, P.; Jones, J.W.; Allen, L.H. Jr. New York, N.Y. : Springer. Vegetable seedlings in automated growing and transplanting systems need to be short and sturdy to facilitate handling by machines. Ambient CO2 levels, temperature, and spacing were varied to determine their effects on growth of tomato seedlings during the first three weeks after seeding. Temperature and spacing influenced plant growth and physical characteristics more than the CO2 enrichment. Seedling heights and fresh weight were reduced more than 50% by changing day/night temperatures from 27 degrees/20 degrees C (81 degrees/68 degrees F) to 20 degrees/13 degrees C (68 degrees/55 degrees F). Doubling the space per plant reduced both shoot length and fresh weight. Elevating the CO2 level from 330 to 660 microliter/L (ppm) slightly increased plant heights. However, greater than 660 ppm CO2 increased leaf number, percent dry matter, sugar and starch, but decreased chlorophyll concentration. A combination of CO2 enrichment, 20/13 degrees day/night temperatures, and proper spacing under full sunlight appears to be an efficient method of producing good quality seedlings. Vegetable transplants grown in this way would be acceptable for use in proposed automatic handling systems. Applied agricultural research. Winter 1990. v. 5 (1). p. 1-8. ill. Includes references. (NAL Call No.: DNAL S539.5.A77).

0368

Growth inhibitors in host plant resistance to insects: examples from a wild tomato with Heliothis zea (Lepidoptera: Noctuidae).
JESCEP. Farrar, R.R. Kennedy, G.C. Tifton, Ga. : Georgia Entomological Society. Journal of entomological science. Jan 1990. v. 25 (1). p. 46-56. Includes references. (NAL Call No.: DNAL QL461.G4).

0369

High temperature acclimation in pepper leaves.
HJHSA. Anderson, J. McCollum, G.; Roberts, W. Alexandria, Va. : American Society for Horticultural Science. HortScience. Oct 1990. v. 25 (10). p. 1272-1274. Includes references. (NAL Call No.: DNAL SB1.H6).

0370

Highly potent germination inhibitors in aqueous eluate of fruits of Bishop's weed (Ammi majus L.) and avoidance of autoinhibition (Anastatica hierochuntica, lettuce, tomato).
Friedman, J. Rushkin, E.; Waller, G.R. New York, Plenum Press. Journal of chemical ecology. Jan 1982. v. 8 (1). p. 55-65. ill. Includes 14 ref. (NAL Call No.: QD415.A1J6).

0371

Hydroponic tomato yield affected by chlormequat chloride, seeding time, and transplant maturity.
JOSHB. Adler, P.R. Wilcox, G.E. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Mar 1987. v. 112 (3). p. 198-201. Includes references. (NAL Call No.: DNAL 81 SO12).

0372

Identification of several pathogenesis-related proteins in tomato leaves inoculated with Cladosporium fulvum (syn. Fulvia fulva) as 1,3-beta-glucanases and chitinases.
PLPHA. Joosten, M.H.A.J. Wit, P.J.G.M. de. Rockville, Md. : American Society of Plant Physiologists. Inoculation of tomato (Lycopersicon esculentum) leaves with Cladosporium fulvum (Cooke) (syn. Fulvia fulva Cooke Cif) results in a marked accumulation of several pathogenesis-related (PR) proteins in the apoplast. Two predominant PR proteins were purified from apoplastic fluid by ion exchange chromatography followed by chromatofocusing. One protein (molecular mass Mr 35 kilodaltons kD isoelectric point L approximately 6.4) showed 1,3-beta glucanase activity, while the other one (Mr26 kD, pl approximately 6.1) showed chitinase activity. Identification of the products that were released upon incubation of the purified enzymes with laminarin or regenerated chitin revealed that both enzymes showed endo-activity. Using antisera raised against these purified enzymes from tomato and against chitinases and 1,3-beta-glucanase isolated from other plant species, one additional 1,3-beta-glucanase (Mr33 kD) and three additional chitinases (Mr 27, 30, and 32 kD) could be detected in apoplastic fluids or homogenates of tomato leaves inoculated with C. fulvum. Upon inoculation with C. fulvum, chitinase and 1,3-beta-glucanase activity in apoplastic fluids increased more rapidly in incompatible interactions than in compatible

ones. The role of these hydrolytic enzymes, potentially capable of degrading hyphal walls of C. fulvum, is discussed in relation to active plant defense. Plant physiology. 1ar 1989. v. 89 (3). p. 945-951. ill. Includes references. (NAL Call No.: DNAL 450 P692).

0373

Identification of volatile allelochemicals from Amaranthus palmeri S. Wats.
JCECD. Connick, W.J. Jr. Bradow, J.M.; Legendre, M.G.; Vail, S.L.; Menges, R.M. New York, N.Y. : Plenum Press. Journal of chemical ecology. Mar 1987. v. 13 (3). p. 463-472. Includes references. (NAL Call No.: DNAL QD415.A1J6).

0374

The Impact of sulfur dioxide on a processing tomato stressed with chronic ambient ozone / R.J. Oshima. -.
Oshima, R. J. Riverside, Calif. University of California, Statewide Air Pollution Research Center 1979. Submitted in fulfillment of Research Contract A7-141-30 by the Statewide Air Pollution Research Center, University of California, Riverside, under sponsorship of the California Air Resources Board. PB 81-163644. 83 leaves : ill. ; 28 cm. Bibliography: leaf 72. (NAL Call No.: QK753.S85I4).

0375

Implication of pectic components in cell surface interactions between tomato root cells and Fusarium oxysporum f. sp. radicis-lycopersici.
PLPHA. Benhamou, N. Chamberland, H.; Pauze, F.J. Rockville, Md. : American Society of Plant Physiologists. Aplysia gonad lectin, a polygalacturonic acid-binding lectin isolated from the sea mollusc Aplysia depilans, was complexed to colloidal gold and used for localizing polygalacturonic-acid-containing molecules in tomato root tissues infected with Fusarium oxysporum f. sp. radicis-lycopersici (FORL). Colonization of host tissues by FORL was associated with striking wall modifications including disruption and even loss of middle lamellae. According to the labeling pattern observed in host wall areas adjacent to fungal penetration channels, it is likely that FORL pectolytic enzymes act through localized wall degradation. The release of polygalacturonic acid-rich wall fragments and the accumulation of polygalacturonic acid-containing molecules in some altered phloem cells were frequently observed and considered to be specific host reactions to fungal attack. The heavy deposition of such molecules at strategic sites such as wall oppositions and intercellular spaces provides support to their implication in the plant defense system. The possible interrelation between polygalacturonic acid-containing molecules and other polymers such as lignin and phenolic compounds remains to be investigated further. The role of these molecules in host-pathogen interactions is discussed in relation to plant defense. Plant physiology. Apr 1990. v. 92 (4). p. 995-1003. ill. Includes references. (NAL Call No.: DNAL 450 P692).

0376

Influence of dikegulac on the growth of processing tomatoes.
HJHSA. Frost, D.J. Kretchman, D.W. Alexandria, Va. : American Society for Horticultural Science. HortScience. Apr 1987. v. 22 (2). p. 232-234. Includes references. (NAL Call No.: DNAL SB1.H6).

0377

Interaction of nuclear polyhedrosis virus with catechols: potential incompatibility for host-plant resistance against noctuid larvae.
JCECD. Felton, G.W. Duffey, S.S.; Vail, P.V.; Kaya, H.K.; Manning, J. New York, N.Y. : Plenum Press. Journal of chemical ecology. Apr 1987. v. 13 (4). p. 947-957. Includes references. (NAL Call No.: DNAL QD415.A1J6).

0378

Interactions between polymer soil conditioners and organic amendments in the improvement of physical properties of soil.
JPNUDS. Wallace, A. Wallace, G.A. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. Paper published in "Interactions of Limiting Factors in Crop Production", a special issue devoted to research papers by Dr. Arthur Wallace. 1990. v. 13 (3/4). p. 437-450. Includes references. (NAL Call No.: DNAL QK867.J67).

0379

Interpreting plant responses to clinostating (Epinasty, cocklebur, tomatoes, castor beans). I. Mechanical stresses (leaf flopping) and ethylene.
Salisbury, F.B. Wheeler, R.M. Rockville, Md., American Society of Plant Physiologists. Plant physiology. Apr 1981. v. 67 (4). p. 676-685. ill. 45 ref. (NAL Call No.: 450 P692).

0380

Iron-stress induced redox activity in tomato (Lycopersicum esculentum Mill.) is localized on the plasma membrane.
PLPHA. Buckhout, T.J. Bell, P.F.; Luster, D.G.; Chaney, R.L. Rockville, Md. : American Society of Plant Physiologists. Tomato plants (Lycopersicum esculentum Mill.) were grown for 21-days in a complete hydroponic nutrient solution including

Fe3+-ethylenediamine-di(o-hydroxyphenylacetate) and subsequently switched to nutrient solution withholding Fe for 8 days to induce Fe stress. The roots of Fe-stressed plants reduced chelated Fe at rates sevenfold higher than roots of plants grown under Fe-sufficient conditions. The response in intact Fe-deficient roots was localized to root hairs, which developed on secondary roots during the period of Fe stress. Plasma membranes (PM) isolated by aqueous two-phase partitioning from tomato roots grown under Fe stress exhibited a 94% increase in rates of NADH-dependent Fe3+ citrate reduction compared to PM isolated from roots of Fe-sufficient plants. Dptimal detection of the reductase activity required the presence of detergent indicating structural latency. In contrast, NADPH-dependent Fe3+-citrate reduction was not significantly different in root PM isolated from Fe-deficient versus Fe-sufficient plants and proceeded at substantially lower rates than NADH-dependent reduction. Mg2+-ATPase activity was increased 22% in PM from roots of Fe-deficient plants compared to PM isolated from roots of Fe-sufficient plants. The results localized the increase in Fe reductase activity in roots grown under Fe stress to the PM. Plant physiology. May 1989. v. 90 (1). p. 151-156. Includes references. (NAL Call No.: DNAL 450 P692).

0381

Irrigation timing as a factor in crop tolerance in salinity.
Shalhever, J. Meiri, A.; Heuer, B. Davis : University of California, Davis?, 1981? . A Conference on biosalinity : the problem of salinity in agriculture : a joint conference of Egyptian, Israeli and American scientists, Univ. of California, Davis, September 1-4, 1981 / organized and. p. 54-56. (NAL Call No.: DNAL S619.S24C6).

0382

Isolation and characterization of an elicitor of necrosis isolated from intercellular fluids of compatible interactions of Cladosporium fulvum (Syn. Fulvia fulva) and tomato.
PLPHA. Wit, P.J.G.M. de. Hofman, A.E.; Velthuis, G.C.M.; Kuc, J.A. Rockville, Md. : American Society of Plant Physiologists. Plant physiology. Mar 1985. v. 77 (3). p. 642-647. ill. Includes 31 references. (NAL Call No.: DNAL 450 P692).

0383

The kinetics of phosphorus, manganese and zinc absorption in mycorrhizal tomatoes, Lycopersicum esculentum L. / Glomus fasciculatus (Thaxter sensu Gerdemann) Gerdemann and Trappe, comb. nov. / by William Arthur Cress. -.
Cress, William Arthur, 1947-. Ann Arbor, Mich. University Microfilms International 1979. Thesis--New Mexico State University, 1978. Facsimile produced by microfilm-xerography. xii, 89 leaves : ill. ; 28 cm. Bibliography: leaves 60-76. (NAL Call No.: DISS 78-23,156).

0384

Laboratory comparisons of Capsicum annuum cultivars for determination of Liriomyza trifolii host preference.
SENTD. Chandler, L.D. Villalon, B. College Station, Tex. : Southwestern Entomological Society. The Southwestern entomologist. Dec 1989. v. 14 (4). p. 419-429. Includes references. (NAL Call No.: DNAL QL461.S65).

0385

Manganese toxicity in tomato plants: effects on cation uptake and distribution.
JPNUDS. Le Bot, J. Kirby, E.A.; Van Beusichem, M.L. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. 1990. v. 13 (5). p. 513-525. Includes references. (NAL Call No.: DNAL QK867.J67).

0386

Monoclonal antibodies to plant growth regulators. III. Zeatinriboside and dihydrozeatinriboside.
PLPHA. Eberle, J. Arnscheidt, A.; Klix, D.; Weiler, E.W. Rockville, Md. : American Society of Plant Physiologists. Plant physiology. June 1986. v. 81 (2). p. 516-521. Includes 29 references. (NAL Call No.: DNAL 450 P692).

0387

N and P fertilizers and growth and yield of sweet pepper.
JAUPA. Gonzalez, A. Beale, A. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Apr 1987. v. 71 (2). p. 209-215. Includes references. (NAL Call No.: DNAL 8 P832J).

0388

A novel enolic beta-ketoaldehyde phytotoxin produced by Stemphylium botryosum f. sp. lycopersici. Partial chemical and biological characterization (Causal agent of leaf spot and foliage blight disease of tomato, Fungi).
Barash, I. Pupkin, G.; Netzer, D.; Kashman, Y. Rockville, Md., American Society of Plant Physiologists. Plant physiology. Jan 1982. v. 69 (1). p. 23-27. ill. 14 ref. (NAL Call No.: 450 P692).

0389

Observation of tomato russet mite (Acari: Eriophyidae) damage symptoms in relation to tomato plant development.
JEENAI. Zalom, F.G. Kitzmiller, J.; Wilson, L.T.; Gutierrez, P. College Park, Md. : Entomological Society of America. Journal of economic entomology. Aug 1986. v. 79 (4). p. 940-942. Includes references. (NAL Call No.: DNAL 421 J822).

0390

Osmotic priming of tomato seeds: effects on germination, field emergence, seedling growth, and fruit yield.
JOSHB. Alvarado, A.D. Bradford, K.J.; Hewitt, J.D. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. May 1987. v. 112 (3). p. 427-432. Includes references. (NAL Call No.: DNAL 81 SO12).

0391

Partial purification of proteinase inhibitors from wounded tomato plants (Lycopersicon esculentum).
Cleveland, T.E. Black, L.L. Rockville, Md., American Society of Plant Physiologists. Plant physiology. Feb 1982. v. 69 (2). p. 537-542. ill. Includes 19 ref. (NAL Call No.: 450 P692).

0392

Plant and fungal cell wall fragments activate expression of proteinase inhibitor genes for plant defense.
JCECD. Ryan, C.A. Bishop, P.D.; Graham, J.S.; Broadway, R.M.; Duffey, S.S. New York, N.Y. : Plenum Press. Journal of chemical ecology. May 1986. v. 12 (5). p. 1025-1036. ill. Includes references. (NAL Call No.: DNAL QD415.A1J6).

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Plant regeneration from cultured leaf explants of eight wild tomato species and two related Solanum species (Tissue culture).
Kut, S.A. Evans, D.A. Gaithersburg, Md., The Association. In vitro; journal of the Tissue Culture Association. July 1982. v. 18 (7). p. 593-598. ill. 13 ref. (NAL Call No.: QH585.A1I58).

0394

Plant spatial arrangement and density effects on small- and medium-vined processing tomatoes.
JOSHB. Frost, D.J. Kretchman, D.W. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Jan 1988. v. 113 (1). p. 51-55. ill. Includes references. (NAL Call No.: DNAL 81 SO12).

0395

Postharvest color development in nor F1 tomato hybrids as influenced by maturity state at harvest.
Buescher, R.W. Hardy, C.; Tigchelaar, E.C. Alexandria, Va., American Society for Horticultural Science. HortScience. June 1981. v. 16 (3). p. 329-330. ill. 10 ref. (NAL Call No.: SB1.H6).

0396

Potassium effect on iron stress in tomato. I. The effect on pH, Fe-reductase and chlorophyll.
JPNUDS. Szlek, M. Miller, G.W.; Welkie, G.W. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. 1990. v. 13 (2). p. 215-229. ill. Includes references. (NAL Call No.: DNAL QK867.J67).

0397

Proteinase inhibitor-inducing factor activity in tomato leaves resides in oligosaccharides enzymically released from cell walls (Wound hormone pest attack).
Bishop, P.D. Makus, D.J.; Pearce, G.; Ryan, C.A. Washington, D.C., The Academy. Proceedings of the National Academy of Sciences of the United States of America. June 1981. v. 78 (6). p. 3536-3540. ill. 15 ref. (NAL Call No.: 500 N21P).

0398

Purification and properties of acid phosphatase-1 from a nematode resistant tomato cultivar.
PLPHA. Paul, E.M. Williamson, V.M. Rockville, Md. : American Society of Plant Physiologists. Plant physiology. June 1987. v. 84 (2). p. 399-403. ill. Includes references. (NAL Call No.: DNAL 450 P692).

0399

Quick test for biochemical characters speeds development of insect resistant tomatoes.
HARAA. Rymal, K.S. Tanticharoenkiat, S.; Hunter, A.G. Auburn, Ala. : The Station. Highlights of agricultural research - Alabama Agricultural Experiment Station. Winter 1986. v. 33 (4). p. 6. ill. (NAL Call No.: DNAL 100 AL1H).

0400

Reduction in photosynthesis of tomato leaflets caused by tomato russet mite (Acari: Eriophyidae).
EVETEX. Royalty, R.N. Perring, T.M. Lanham, Md. : Entomological Society of America. The reduction in net photosynthesis caused by

tomato russet mite (TRM), Aculops lycopersici (Massee), feeding was measured. A significant relationship between net photosynthesis and mite-days per cm2 of leaflet was observed. Photosynthesis of healthy tomato leaflets did not increase to compensate for photosynthesis reduction in damaged leaflets. Studies suggest that destruction of guard cells and subsequent reduction of leaf gas exchange were responsible for photosynthesis reduction, and that no photosynthesis-reducing phytotoxin is present in TRM saliva. Environmental entomology. Apr 1989. v. 18 (2). p. 256-260. ill. Includes references. (NAL Call No.: DNAL QL461.E532).

0401

Responses of tomato to sodium 2,3-dichloroisobutyrate.
Aung, L.H. Longmont, Colo., The Group. Proceedings - Plant Growth Regulator Working Group.Plant Growth Regulator Working Group. 1979. 1979. (6th). p. 48-52. ill. 9 ref. (NAL Call No.: SB128.P5).

0402

Restricted root zone volume: influence on growth and development of tomato.
JOSHB. Ruff, M.S. Krizek, D.T.; Mirecki, R.M.; Inouye, D.W. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Sept 1987. v. 112 (5). p. 763-769. ill. Includes references. (NAL Call No.: DNAL 81 SO12).

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Screening for flooding tolerance in the genus Lycopersicon (Tomato, waterlogging).
Kuo, C.G. Tsay, J.S.; Chen, B.W.; Lin, P.Y. Alexandria, Va., American Society for Horticultural Science. HortScience. Feb 1982. v. 17 (1). p. 76-78. Includes 10 ref. (NAL Call No.: SB1.H6).

0404

Seed-germination inhibition by volatile alcohols and other compunds associated with Amaranthus palmeri residues.
JCECD. Bradow, J.M. Connick, W.J. Jr. New York, N.Y. : Plenum Press. Journal of chemical ecology. July 1988. v. 14 (7). p. 1633-1648. Includes references. (NAL Call No.: DNAL QD415.A1J6).

0405

Sesquiterpenes in glandular trichomes of a wild tomato species and toxicity to the Colorado potato beetle.
JAFCAU. Carter, C.D. Gianfagna, T.J.; Sacalis, J.N. Washington, D.C. : American Chemical Society. Journal of agricultural and food chemistry. Sept/Oct 1989. v. 37 (5). p. 1425-1428. Includes references. (NAL Call No.: DNAL 381 J8223).

0406

Sorption of organic compounds by plant cuticles.
WEESA6. Bukovac, M.J. Petracek, P.D.; Fader, R.G.; Morse, R.D. Champaign, Ill. : Weed Science Society of America. Relevant data on the sorption of organic compounds by isolated plant cuticles are reviewed and discussed in relation to the foliar penetration process. The chemical properties and structure of plant cuticles favor sorption of lipophilic compounds and play an important role in the penetration of biologically active substances. With organic acid auxins 2,4-D and NAA, and methylene blue as molecular probes, concentration, pH, temperature, and surfactants were important factors affecting sorption. The constituent waxes of the cuticle markedly inhibit sorption of a wide range of organic compounds. Octoxynol surfactants that have 5 or 7.5 polyoxyethylene groups interact with the epicuticular wax to enhance the sorption of NAA. At sorption equilibrium, the cuticle has a lower affinity for methylene blue in the region usually rich in cuticular waxes and in a narrow band in the cuticular pegs. Weed science. Paper presented at the "Symposium on Physiology, WSSA Annual Meeting," February 7, 1989, Dallas, Texas.~ Literature review. May 1990. v. 38 (3). p. 289-298. ill. Includes references. (NAL Call No.: DNAL 79.8 W41).

0407

Stress-induced ethylene production in the ethylene-requiring tomato mutant diageotropica.
Bradford, K.J. Yang, S.F. Bethesda, Md., American Society of Plant Physiologists. Plant physiology. Feb 1980. v. 65 (2). p. 327-330. ill. 15 ref. (NAL Call No.: 450 P692).

0408

Studies of the effects of brassinosteroid treatment on the growth and yield of crops.
PPGGD. Lim, U.K. Lake Alfred : The Society. Proceedings annual meeting - Plant Growth Regulator Society of America. 1985. (12th). p. 213-219. (NAL Call No.: DNAL SB128.P5).

0409

Symplastic entry and phloem translocation of phosphonate.
PCBPB. Ouimette, D.G. Coffey, M.D. Duluth, Minn. : Academic Press. Pesticide biochemistry and physiology. Sept 1990. v. 38 (1). p. 18-25. Includes references. (NAL Call No.: DNAL SB951.P49).

0410

Tolerance of transplanted bell peppers (Capsicum annum) to clomazone and diethatyl applied preemergent.
AAREEZ. Weston, L.A. Jones, R.T. New York, N.Y. : Springer. Field experiments evaluated the efficacy of preemergence herbicides and herbicide combinations for annual weed control in bell peppers produced for processing. Trifluralin plus napropamide, diethatyl, diethatyl plus diphenamid, and clomazone were evaluated for full season weed control and phytotoxicity to bell pepper transplants. All chemicals were applied posttransplant except for trifluralin, which was preplant incorporated. Plots were rated for weed control and crop in jury 4 and 11 weeks after herbicide application. Diethatyl at 2.2 kg ai/ha (2.0 lb/A) amd diethatyl plus diphenamid at 3.4 and 3.7 kg ai/ha caused noticeable crop injury at 4 weeks after application in 1986. At 11 weeks, crop injury was not apparent in any treatment. Superior full season weed control was obtained by one application of clomazone at 1.7 kg ai/ha, or split applications of trifluralin followed by devrinol or diethatyl followed by diethatyl (2.2 kg ai/ha). Up to 90% greater yields of peppers were obtained from plots treated with herbicide(s) than from the cultivated controls. Yield responses of bell peppers were not significantly different among any herbicide treatments. Applied agricultural research. Winter 1990. v. 5 (1). p. 13-16. Includes references. (NAL Call No.: DNAL S539.5.A77).

0411

Tomato leaf development and distribution as influenced by leaf removal and decapitation.
HJHSA. Decoteau, D.R. Alexandria, Va. : American Society for Horticultural Science. HortScience. June 1990. v. 25 (6). p. 681-684. Includes references. (NAL Call No.: DNAL SB1.H6).

0412

Tomatoes can beat the heat.
ORGAA. Pleasant, B. Emmaus, Pa. : Rodale Press. Organic gardening. Dec 1984. v. 31 (12). p. 26-30. (NAL Call No.: DNAL 57.8 OR32).

0413

Transformation of tobacco, tomato, potato, and Arabidopsis thaliana using a binary Ti vector system.
PLPHA. An, G. Watson, B.D.; Chiang, C.C. Rockville, Md. : American Society of Plant Physiologists. Plant physiology. May 1986. v. 81 (1). p. 301-305. ill. Includes 24 references. (NAL Call No.: DNAL 450 P692).

0414

Transpiration in growth retardant treated poinsettia, bean and tomato (Ancymidol, chlormequat, daminozide).
Barrett, J.E. Nell, T.A. S.l., The Society. Proceedings of the ... annual meeting of the Florida State Horticultural Society. 1981 (pub. 1982). v. 94. p. 85-87. Includes 16 ref. (NAL Call No.: 81 F66).

0415

Use of an improved exudation method for the study of phloem mobility of pesticides.
Groussol, J. Delrot, S.; Houngbossa, S.; Caruhel, P.; Bonnemain, J.L. New York : Alan R. Liss. Plant biology. In the series analytic: Phloem Transport / edited by J. Cronshaw, W.J. Lucas and R.T. Giaquinta. Proceedings of an International Conference, August 18-23, 1985, Asilomar, California. 1986. v. 1. p. 619-626. Includes references. (NAL Call No.: DNAL QH301.P535).

0416

Variable patterns of expression of luciferase in transgenic tobacco leaves.
PNASA. Barnes, W.M. Washington, D.C. : The Academy. A carboxyl-terminally modified firefly luciferase, encoded as a gene fusion to the neomycin phosphotransferase gene (which confers kanamycin resistance), was found to be enzymatically active for both enzymes when expressed in bacteria and in transgenic plants. A military-type starlight vision system was used to conveniently analyze the pattern of gene expression in transgenic tobacco plant leaves. Transgenic tobacco plants which expressed luciferase uniformly in all areas of the leaf, and assays for luciferin, demonstrated that luciferin rapidly penetrates all regions of a tobacco leaf in at least two dimensions. Depending on the test gene structure or, presumably, on the transferred DNA (T-DNA) insertional context, other transgenic plants were obtained that expressed luciferase with a wide range of nonuniform patterns from nominally the same cauliflower mosaic virus 35S promoter. For instance, the veins can be dark, while only the interveinal regions of the leaf lamina glow, or only the small capillary veins glow, or only the major veins glow. Local and/or systemic induction in response to wounding was also demonstrated. Proceedings of the National Academy of Sciences

of the United States of America. Dec 1990. v. 87 (23). p. 9183-9187. ill. Includes references. (NAL Call No.: DNAL 500 N21P).

0417

Variation among populations of the twospotted spider mite, Tetranychus urticae Koch (Acari: Tetranychidae), in measures of fitness and host-acceptance behavior on tomato.
EVETEX. Fry, J.D. College Park, Md. : Entomological Society of America. Seven populations of the twospotted spider mite (Tetranychus urticae Koch) were compared in measures of survival, development rate, reproduction, and host-acceptance behavior on tomato plants. Populations varied widely in the fitness measures and degree of acceptance of tomato. These results, together with those of a previous study, show that although individual populations of T. urticae are broadly polyphagous, different populations may vary considerably in performance on a particular host species or variety. As a result, studies designed to assess the resistance of a cultivar to T. urticae that use only a single mite population may give misleading results. Environmental entomology. Apr 1988. v. 17 (2). p. 287-292. Includes references. (NAL Call No.: DNAL QL461.E532).

0418

Volatile methyl ketone seed-germination inhibitors from Amaranthus palmeri S. Wats. residues.
JCECD. Bradow, J.M. Connick, W.J. Jr. New York, N.Y. : Plenum Press. Journal of chemical ecology. July 1988. v. 14 (7). p. 1617-1631. Includes references. (NAL Call No.: DNAL QD415.A1J6).

0419

Water relations of container-grown woody and herbaceous plants following antitranspirant sprays.
HJHSA. Hummel, R.L. Alexandria, Va. : American Society for Horticultural Science. HortScience. July 1990. v. 25 (7). p. 772-775. Includes references. (NAL Call No.: DNAL SB1.H6).

0420

Water stress indicators for tomato crop.
Katerji, N. Itier, B.; Ferreira, I.; Pereira, L.S. Logan, Utah : Utah State University, 1987? . Proceedings of International Conference on Measurement of Soil and Plant Water Status : in commemoration of the centennial of Utah State University, July 6-10, 1987, Logan, Utah. v. 2 p. 155-161. Includes references. (NAL Call No.: DNAL QK870.I5 1987).

0421

Wound-induced proteinase inhibitors from tomato leaves. I. The cDNA-deduced primary structure of pre-inhibitor I and its post-translational processing.
JBCHA3. Graham, J.S. Pearce, G.; Merryweather, J.; Titani, K.; Ericsson, L.; Ryan, C.A. Baltimore, Md. : American Society of Biological Chemists. The Journal of biological chemistry. June 10, 1985. v. 260 (11). p. 6555-6560. ill. Includes 50 references. (NAL Call No.: DNAL 381 J824).

0422

Wound-regulated synthesis and vacuolar compartmentation of proteinase inhibitors in plant leaves (Tomatoes).
Ryan, C.A. New York, Academic Press. Current topics in cellular regulation. 1980. Literature review. v. 17. p. 1-23. ill. 58 ref. (NAL Call No.: QH573.C8).

0423

Yields of greenhouse tomatoes managed to maintain specific petiole sap nitrate levels.
HJHSA. Coltman, R.R. Alexandria, Va. : American Society for Horticultural Science. HortScience. Feb 1988. v. 23 (1). p. 148-151. Includes references. (NAL Call No.: DNAL SB1.H6).

0424

Backyard tomato production.
Williams, D. Auburn, Ala. : The Service. Circular ANR - Cooperative Extension Service, Auburn University. Subseries: Agriculture & natural resources, horticulture. Feb 1987. (302). 2 p. ill. (NAL Call No.: DNAL S544.3.A2C47).

0425

Capillary gas chromatograms of leaf volatiles. A possible aid to breeders for pest and disease resistance (Tests with tomato cultivars).
Andersson, B.A. Holman, R.T.; Lundgren, L.; Stenhagen, G. Washington, D.C., American Chemical Society. Journal of agricultural and food chemistry. Sept/Oct 1980. v. 28 (5). p. 985-989. ill. 10 ref. (NAL Call No.: 381 J8223).

0426

Commercial pepper production in North Carolina.
Sanders, D.C. Averre, C.W.; Sorensen, K.A.; Estes, E.A.; Beasley, E.O.; Bonanno, A.R. Raleigh, N.C. : The Service. AG - North Carolina Agricultural Extension Service, North Carolina State University. June 1988. (387). 16 p. ill., maps, , plates. (NAL Call No.: DNAL S544.3.N6N62).

0427

Commercial tomato production.
Turner, J. Patterson, M.; Gazaway, W.S.; Brown, S.; Williams, J.L. Auburn, Ala. : The Service. Circular ANR - Alabama Cooperative Extension Service, Auburn University. May 1988. (145). 12 p. ill. (NAL Call No.: DNAL S544.3.A2C47).

0428

Common tomato disorders under desert conditions.
Mills, L. Johnson, W. Reno, Nev. : The College. Fact sheet - College of Agriculture, University of Nevada-Reno, Nevada Cooperative Extension. 1988? . (88-60). 4 p. Includes references. (NAL Call No.: DNAL S544.3.N3C66).

0429

Compatibility of chlorpyrifos sprays with fertilizer and fungicide amendments on Florida peppers.
Moherek, E.A. s.l. : The Society. Proceedings of the ... annual meeting of the Florida State Horticulture Society. 1986. v. 98. p. 254-256. Includes references. (NAL Call No.: DNAL SB319.2.F6F56).

0430

Determination of plant proteinase inhibitors by agar gel radial diffusion assay (Important as defenses against plant predators and pathogens, Lycopersicon esculetum, Datura stramonium, tobacco hornworm, Manduca sexta).
Shukle, R.H.EVETB. Murdock, L.L. College Park : Entomological Society of America. Environmental entomology. Feb 1983. v. 12 (1). p. 255-259. ill. Includes references. (NAL Call No.: QL461.E532).

0431

Effect of manual defoliation on unstaked fresh-market tomato yield and quality /Jozef Keularts, Van Waddill and Ken Pohronezny.
Keularts, Jozef Leo Willem, 1945-. Waddill, Van.; Pohronezny, Kenneth Louis, 1946-. Gainesville, Fla. : Agricultural Experiment Stations, Institute of Food and Agricultural Sciences, University of Florida, 1985. Cover title: Effect of manual defoliation on tomato yield and quality.~ "June 1985.". 41 p. : ill. ; 23 cm. Bibliography: p. 39-41. (NAL Call No.: DNAL 100 F66S (1) no.847).

0432

Evaluation of Lycospersicon sp. accessions for resistance to bacterial spot (Xanthomonas campestris pv. vesicatoria (Doidge) dye) /J.W. Scott and J.B. Jones.
Scott, J. W. 1948-. Jones, J. B. 1951-. Gainesville, Fla. : Agricultural Experiment Stations, Institute of Food and Agricultural Sciences, University of Florida, 1985. "August 1985.". 16 p. ; 23 cm. Bibliography: p. 15-16. (NAL Call No.: DNAL 100 F66S (1) no.855).

0433

Greenhouse tomato cultivar evaluation trial--fall crop, Columbus, 1979.
Scott, J.W. Wooster, Ohio, The Center. Research circular - Ohio Agricultural Research and Development Center. Mar 1981. Mar 1981. (264). p. 18-19. (NAL Call No.: 100 OH3R).

0434

Grower's guide for vegetable crops: peppers (Varieties, insect and disease control).
Bienz, D.R. Thornton, R.E. Pullman, Wash., The Service. EM - Washington State University, Cooperative Extension Service. Nov 1980. Nov 1980. (2946). 5 p. (NAL Call No.: 275.29 W27MI).

0435

Horizon, a fresh market tomato with concentrated fruit set.
Scott, J.W. Bartz, J.A.; Bryan, H.H.; Everett, P.H.; Gull, D.D.; Howe, T.K.; Stoffella, P.J.; Volin, R.B. Gainesville : The Station. Circular S - Florida, Agricultural Experiment Station. Includes statistical data. June 1985. (323). 8 p. (NAL Call No.: DNAL 100 F66CI).

0436

Influence of fumigation on the sowing qualities of vegetable (cucumber, tomato, onion and beet) seeds.
Kononkov, P.F. Mordkovich, YA.B.; Kuznetsov, I.D. New York, Allerton Press. Soviet agricultural sciences. 1979. 1979. (4). p. 16-18. 2 ref. (NAL Call No.: S1.S68).

0437

Integrated pest management for tomatoes.
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0438

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0439

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0440

Pepper production guide.
Turner, J. Gazaway, W.S.; Patterson, M.; Brown, S.; Williams, J.L. Auburn, Ala. : The Service. Circular ANR - Alabama Cooperative Extension Service, Auburn University. May 1988. (108). 12 p. (NAL Call No.: DNAL S544.3.A2C47).

0441

Pest control in commercial tomato production.
Binning, L.K. Pellitteri, P.J.; Stevenson, W.R. Madison, Wis. : The Research Division. Publication - Cooperative Extension Programs. University of Wisconsin - Extension. Dec 1985. (A2351). 4 p. ill. (NAL Call No.: DNAL S544.3.W6W53).

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Pest control in commercial tomato production.
Binning, L.K. Wyman, J.A.; Stevenson, W.R. Madison, Wis., The Programs. Publication - Cooperative Extension Programs, University of Wisconsin Extension. Feb 1982. Feb 1982. (A2351). 4 p. (NAL Call No.: S544.3.W6W53).

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Pest control in commercial tomato production (Weeds, insects and diseases).
Binning, L.K. Wyman, J.A.; Stevenson, W.R. , Madison : The Programs. Publication - Cooperative Extension Programs. University of Wisconsin - Extension. Feb 1983. Feb 1983. (2351). 4 p. (NAL Call No.: S544.3.W6W53).

0444

Pest management practices in processing tomatoes.
CAGRA. Flint, M.L. Klonsky, K. Berkeley : The Station. California agriculture - California Agricultural Experiment Station. Jan/Feb 1985. v. 39 (1/2). p. 19-20. maps. (NAL Call No.: DNAL 100 C12CAG).

0445

Response of tomato to defoliation (by insects, disease, temperature and water stresses, and mechanical injury, yield, photosynthesis, transpiration).
Wolk, J.O.JOSHB. Kretchman, D.W.; Ortega, D.G. Jr. Alexandria : The Society. Journal of the American Society for Horticultural Science. July 1983. v. 108 (4). p. 536-540. ill. Includes references. (NAL Call No.: 81 SO12).

0446

Spraying and dusting tomatoes.
Jones, B.F. Johnson, D.R.; McDaniel, M.C.; Hirrel, M. Little Rock, Ark. : The Service. Leaflet EL - Arkansas University, Cooperative Extension Service. May 1986. (217). 12 p. (NAL Call No.: DNAL 275.29 AR4LE).

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JEENAI. Cartwright, B. Teague, T.G.; Chandler, L.D.; Edelson, J.V.; Bentsen, G. Lanham, Md. : Entomological Society of America. Action thresholds for the management of pepper weevil (Anthonomus eugenii Cano) on bell pepper (Capsicum annuum L.) were compared in threestudies in spring and fall 1987. In small plot tests, insecticide applied for weevilcontrol when 5% of bud clusters were damaged resulted in reduced fruit and bud damage, higheryield, and improved net economic returns compared with a threshold of one adult per 100 bud clusters or weekly insecticide applications. The threshold of one adult per 100 budclusters provided better yields than weekly insecticide applications; however, thisthreshold was not as sensitive to weevil activity as the damage-based threshold and was notsatisfactory when weevil populations were large, When compared in a commercial pepper field,damage-based thresholds of 1 and 5% damaged bud clusters provided marketable yields similarto calendar-based spray programs with a reduction of up to 10 sprays per season underlight weevil pressure. Weevil damage in bud clusters was significantly correlated withadult counts; therefore, damage can serve as a practical index of weevil activity. Journal of economic entomology. Oct 1990. v. 83 (5). p. 2003-2007. Includes references. (NAL Call No.: DNAL 421 J822).

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JCECD. Lin, S.Y.H. Trumble, J.T.; Kumamoto, J. New York, N.Y. : Plenum Press. Journal of chemical ecology. Apr 1987. v. 13 (4). p. 837-850. Includes references. (NAL Call No.: DNAL QD415.A1J6).

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JEENAI. Lindquist, R.K. Krueger, H.R.; Mason, J.F.; Spadafora, R.R. College Park, Md. : Entomological Society of America. Journal of economic entomology. Aug 1973. v. 66 (4). p. 1001-1002. Includes references. (NAL Call No.: DNAL 421 J822).

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Schuster, D.J. S.l., The Society. Proceedings of the ... annual meeting of the Florida State Horticultural Society. 1981 (pub. 1982). v. 94. p. 147-149. Includes 3 ref. (NAL Call No.: 81 F66).

0462

Association of epicuticular sugars with aphid resistance in hybrids with wild tomato.
JOSHB. Goffreda, J.C. Steffens, J.C.; Mutschler, M.A. Alexandria, Va. : The Society. Behavioral studies have shown that aphid resistance in Lycopersicon pennelli (Corr.) D'Arcy is due to the presence of sugar esters in glandular exudate of the type IV trichomes. In this study, various methods for the estimation of epicuticular sugar ester concentrations were examined. There was a significant negative relationship between the concentration of sugar esters on the leaf and the level of potato aphid infestation in a segregating L. esculentum X L. pannellii F2 population. Selection for sugar ester accumulation should be an efficient selection technique for the aphid resistance of L. pennellii and other species that synthesize epicuticular sugar esters. Journal of the American Society for Horticultural Science. Jan 1990. v. 115 (1). p. 161-165. Includes references. (NAL Call No.: DNAL 81 SO12).

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JAUPA. Ruiz, H. Gallardo Covas, F. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. July 1985. v. 69 (3). p. 439-440. Includes references. (NAL

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Behavior of some pesticide residues on greenhouse tomatoes. 2. Fungicides, acaricides, and insecticides.
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CAGRA. Moar, W.J. Trumble, J.T. Berkeley, Calif. : The Station. California agriculture - California Agricultural Experiment Station. Nov/Dec 1987. v. 41 (11/12). p. 13-15. ill. (NAL Call No.: DNAL 100 C12CAG).

0466

The biology and control of the pepper maggot, Zonosemata electa Say. Trypeditdae /Robert C. Burdette.
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0467

Bugs for sale (Trichogramma, Integrated pest management, Ostrinia nubilalis, Manduca quinquemaculata, biological control, European corn borer, tomato hornworm).
McGrath, M. Emmaus, Pa. : Rodale Press. Organic gardening. Aug 1984. v. 31 (8). p. 34, 36-38, 40-43. ill. (NAL Call No.: 57.8 OR32).

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Carbamate and pyrethroid resistance in the leafminer parasitoid Diglyphus begini (Hymenoptera: Eulophidae).
JEENAI. Rathman, R.J. Johnson, M.W.; Rosenheim, J.A.; Tabashnik, B.E. Lanham, Md. : Entomological Society of America. Populations of Diglyphus begini (Ashmead), a parasitoid of Liriomyza spp. leafminers, showed resistance to oxamyl, methomyl, fenvalerate, and permethrin in laboratory bioassays. Relative to a susceptible strain from California, maximum resistance ratios for these pesticides were 20, 21, 17, and 13, respectively. Three populations that had been treated frequently with insecticides were significantly more resistant to all four insecticides compared with an untreated Hawaii population and a California population with an unknown spray history. Parasitoids from a heavily sprayed tomato greenhouse on the island of Hawaii had LC50's for permethrin and fenvalerate that were 10 and 29 times higher than the field rate, respectively. Populations resistant to oxamyl and methomyl had LC50's two- and sixfold below the field rate, respectively. D. begini is one of the few parasitoids resistant to pyrethroids, with LC50's exceeding field application rates. Resistant D. begini may be useful for controlling leafminers in management programs that integrate biological and chemical controls. Journal of economic entomology. Dec 1990. v. 83 (6). p. 2153-2158. Includes references. (NAL Call No.: DNAL 421 J822).

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Chemical control of Liriomyza sativae and of Lepidoptera larvae on tomato.
JAUPA. Armstrong, A.M. Cruz, C.; Segarra, A. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Jan 1988. v. 72 (1). p. 169-170. Includes references. (NAL Call No.: DNAL 8 P832J).

0470

Chemical control of Meloidogyne incognita, Rotylenchulus reniformis and Anthonomus eugenii in Capsicum annuum and Capsicum frutescens.
NMTPA. Acosta, N. Vicente, N.; Abreu, E.; Medina-Gaud, S. Auburn, Ala. : Organization of Tropical American Nematologists. Nematropica. Dec 1987. v. 17 (2). p. 163-169. Includes references. (NAL Call No.: DNAL SB998.N4N4).

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Chemical control of the potato aphid, Macrosiphum euphorbiae (Thomas), on tomato in Tennessee.
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Chemical control of tomato fruitworm (Mostly Heliothis zea, also includes Heliothis virescens).
Mayse, M.A. Dumas, B.A.; Peerson, M.E. Fayetteville, Ark. : The Station. Arkansas farm research - Arkansas Agricultural Experiment Station. Sept/Oct 1983. v. 32 (5). p. 7. ill. (NAL Call No.: 100 AR42F).

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Colorado potato bettle on tomatoes: economic damage thresholds and control with Bacillus thuringiensis (Leptinotarsa decemlineata).
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Commodity treatments: responses of tomatoes and green bell peppers to fumigation with methyl bromide or ethylene dibromde (Chemical control of Mediterranean fruit fly, Ceratitis capitata, storage decay).
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Comparative toxicity of acaricides to Aculops lycopersici and Homeopronematus anconai (Acari: Eriophyidae, Tydeidae).
JEENAI. Royalty, R.N. Perring, T.M. College Park, Md. : Entomological Society of America. Journal of economic entomology. Apr 1987. v. 80 (2). p. 348-351. Includes references. (NAL Call No.: DNAL 421 J822).

0476

Consequences of modifying biochemically mediated insect resistance in Lycopersicon species.
ACSMC. Kennedy, G.G. Washington, D.C. : The Society. ACS Symposium series - American Chemical Society. 1986. (296). p. 130-141. Includes 37 references. (NAL Call No.: DNAL QD1.A45).

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Control of flea beetles on tomatoes with foliar-applied insecticides.
TFHSA. Snodderly, L.J. Lambdin, P.L. Knoxville, Tenn. : The Station. Tennessee farm and home science - Tennessee Agricultural Experiment Station. Jan/Mar 1981. (117). p. 27-28. Includes references. (NAL Call No.: DNAL 100 T25F).

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Control of stink bugs in tomatoes.
CAGRA. Hoffmann, M.P. Wilson, L.T.; Zalom, F.G. Berkeley, Calif. : The Station. California agriculture - California Agricultural Experiment Station. May/June 1987. v. 41 (5/6). p. 4-6. ill. (NAL Call No.: DNAL 100 C12CAG).

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Control of tomato insect pests.
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Mason, Horatio C. Washington, D.C. : U.S. Dept. of Agriculture, 1962. 12 p. : ill. --. (NAL Call No.: DNAL Fiche S-70 no.2189).

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Controlling pests of sweet peppers with reduced amounts of acephate and an intermittent sprayer (Ostrinia nubilalis, Myzus persicae).
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Controlling tomato pinworm by mating disruption.
CAGRA. Jimenez, M.J. Toscano, N.C.; Flaherty, D.L.; Ilic, P.; Zalom, F.G.; Kido, K. Berkeley, Calif. : The Station. California agriculture - California Agricultural Experiment Station. Nov/Dec 1988. v. 42 (6). p. 10-12. ill. (NAL Call No.: DNAL 100 C12CAG).

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Cottonseed oil and safer insecticidal soap: effects on cotton and vegetable pests and phytotoxicity.
SENTD. Butler, G.D. Jr. Henneberry, T.J. College Station, Tex. : Southwestern Entomological Society. The Southwestern entomologist. Sept 1990. v. 15 (3). p. 257-264. Includes references. (NAL Call No.: DNAL QL461.S65).

0484

Damage threshold of the southern green stink bug, Nezara viridula, (Hemiptera: Pentatomidae) on fresh market tomatoes.
JESCEP. Lye, B.H. Story, R.N.; Wright, V.L. Tifton, Ga. : The Entomological Science Society. Journal of entomological science. Oct 1988. v. 23 (4). p. 366-373. Includes references. (NAL Call No.: DNAL QL461.G4).

0485

Dependence of Verticillium lecanii (Fungi: Hyphomycetes) on high humidities for infection and sporulation using Myzus persicae (Homoptera: Aphididae) as host.
EVETEX. Milner, R.J. Lutton, G.G. College Park, Md. : Entomological Society of America. Environmental entomology. Apr 1986. v. 15 (2). p. 380-382. ill. Includes references. (NAL Call No.: DNAL QL461.E532).

0486

Determination of plant proteinase inhibitors by agar gel radial diffusion assay (Important as defenses against plant predators and pathogens, Lycopersicon esculetum, Datura stramonium, tobacco hornworm, Manduca sexta).
Shukle, R.H.EVETB. Murdock, L.L. College Park : Entomological Society of America. Environmental entomology. Feb 1983. v. 12 (1). p. 255-259. ill. Includes references. (NAL Call No.: QL461.E532).

0487

Disappearance of acephate residues from beans, carrots, celery, lettuce, peppers, potatoes, strawberries, and tomatoes.
Frank, R. Ritchey, G.; Braun, H.E.; McEwen, F.L. College Park, Md. : Entomological Society of America. Journal of economic entomology. Oct 1984. v. 77 (5). p. 1110-1115. Includes 12 references. (NAL Call No.: 421 J822).

0488

Economic comparison of insecticide treatment programs for managing tomato pinworm (Lepidoptera: Gelechiidae) on fall tomatoes.
JEENAI. Wiesenborn, W.D. Trumble, J.T.; Oatman, E.R. Lanham, Md. : Entomological Society of America. The efficacy and economics of various insecticide treatment programs for preventing fruit damage caused by tomato pinworm, Keiferia lycopersicella (Walsingham), on fall plantings of staked tomatoes, Lycopersicon esculentum Mill., were compared during 1982-1984. Methomyl (1.0 kg AI /ha) was used in all treatment programs. Weekly or biweekly applications of insecticide begun when larval density in foliage was greater than or equal to 10 larvae per 3 m of row resulted in less fruit damage than in untreated plots, but the damage increased throughout most of the growing season. Of the treatment programs examined, maximum net revenue (crop value minus treatment program costs) was observed when weekly applications were started at 3-4 larvae per 3 m of row (approximately 0.5 larvae per plant). Insecticide applications begun at this threshold produced less fruit damage than in untreated plots, and damage was stable throughout the growing season. Sampling larvae on foliage provided a direct method for accurately timing the start of weekly insecticide applications. Journal of economic entomology. Feb 1990. v. 83 (1). p. 212-216. Includes references. (NAL Call No.: DNAL 421 J822).

0489

The economics of IPM in processing tomatoes.
CAGRA. Antle, J.M. Park, S.K. Berkeley, Calif. : The Station. California agriculture - California Agricultural Experiment Station. Mar/Apr 1986. v. 40 (3/4). p. 31-32. (NAL Call No.: DNAL 100 C12CAG).

0490

Edovum puttleri (Hymenoptera: Eulophidae), an egg parasitoid of Colorado potato beetle (Coleoptera: Chrysomelidae): development and parasitism on eggplant.
JEENAI. Lashomb, J. Ng, Y.S.; Jansson, R.K.; Bullock, R. College Park, Md. : Entomological Society of America. Journal of economic entomology. Feb 1987. v. 80 (1). p. 65-68. Includes references. (NAL Call No.: DNAL 421 J822).

0491

Effect of an aphid-transmitted yellowing virus on yield and quality of staked tomatoes (Myzus persicae).
Zitter, T.A. Everett, P.H. St. Paul, Minn., American Phytopathological Society. Plant disease. June 1982. v. 66 (6). p. 456-458. ill. Includes 5 ref. (NAL Call No.: 1.9 P69P).

0492

Effect of Beauveria bassiana on underground stages of the Colorado potato beetle, Leptinotarsa decemlineata (Coleoptera: Chrysomelidae).
GRLEA. Cantwell, G.E. Cantelo, W.W.; Schroder, R.F.W. East Lansing, Mich. : Michigan Entomological Society. The Great Lakes entomologist. Summer 1986. v. 19 (2). p. 81-84. Includes references. (NAL Call No.: DNAL QL461.M5).

0493

Effect of day length and light intensity on 2-tridecanone levels and resistance in Lycopersicon hirsutum f. glabratum (tomatoes) to Manduca sexta.
Kennedy, G.G. Yamamoto, R.T.; Dimock, M.B.; Williams, W.G.; Bordner, J. New York, Plenum Press. Journal of chemical ecology. July 1981. v. 7 (4). p. 707-716. ill. 15 ref. (NAL Call No.: QD415.A1J6).

0494

Effect of nuclear polyhedrosis virus infection in Spodoptera ornithogalli larvae on post larval stages and dissemination by adults.
JIVPA. Young, S.Y. Duluth, Minn. : Academic Press. Journal of invertebrate pathology. Jan 1990. v. 55 (1). p. 69-75. Includes references. (NAL Call No.: DNAL 421 J826).

0495

Effect of tomato cultivar and fertilizer regime on the survival of Liriomyza trifolii (Diptera: Agromyzidae).
JEENAI. Bethke, J.A. Parrella, M.P.; Trumble, J.T.; Toscano, N.C. College Park, Md. : Entomological Society of America. Journal of economic entomology. Feb 1987. v. 80 (1). p. 200-203. Includes references. (NAL Call No.: DNAL 421 J822).

0496

Effects of concentration and application method on decay and residual activity of foliar chlorpyrifos.
JEENAI. Veierov, D. Fenigstein, A.; Melamed-Madjar, V.; Klein, M. College Park, Md. : Entomological Society of America. Journal of economic entomology. Apr 1988. v. 81 (2). p. 621-627. Includes references. (NAL Call No.: DNAL 421 J822).

0497

Effects of food plant and diapause on adult survival and fecundity of Colorado potato beetle (Coleoptera: Chrysomelidae).
EVETEX. Jansson, R.K. Zitzman, A.E. Jr.; Lashomb, J.H. Lanham, Md. : Entomological Society of America. Currently, a mass rearing technique for the egg parasitoid, Edovum puttleri Grissell, of the Colorado potato beetle (CPB), Leptinotarsa decemlineata (Say), is lacking. An important component of such a system would be maximization of CPB egg production per day. The present studies characterized the effects of two factors, food plant and diapause history, on CPB egg production. Two greenhouse experiments determined the survivorship and fecundity of CPB on three food plants, potato, Solanum tuberosum tuberosum L. cv. Pungo; tomato, Lycopersicon lycopersicum (L.) Karsten var. lycopersicum, cv. Pick Red; and eggplant, S. melongena L. cv. Harris Special and cv. White. A third study compared the survivorship and fecundity of a field-collected population that had been in a state of diapause at 10 degrees C for 6 mo with that of CPB from the same population cultured on potato in the grenhouse for the same period. Survivorship and longevity of adults did not differ among most food plants. Total egg mass and egg production per female and egg mass size were greatest on potato followed in decreasing order by tomato and 'Harris Special eggplant in one study, and were greatest on tomato followed by potato, 'White' eggplant, and 'Harris Special' eggplant in the second study. Fecundity per day was greatest on potato and tomato in the first and second studies, respectively. Adult longevity, survivorship, total egg mass and egg production per female, and egg mass size did not differ between CPB that had diapaused and those that had not diapaused; however, fecundity per day was greater for CPB that had diapaused than for CPB that had not diapaused. The importance of these data in the development of a mass rearing technique for E. puttleri is discussed. Environmental entomology. Apr 1989. v. 18 (2). p. 291-297. Includes references. (NAL Call No.: DNAL QL461.E532).

0498

Effects of insecticides on populations of the vegetable leafminer (Liriomyza sativae) and associated parasites on fall pole tomatoes.
Johnson, M.W. Oatman, E.R.; Wyman, J.A. College Park, Md., Entomological Society of America. Journal of economic entomology. Feb 15, 1980. v. 73 (1). p. 67-71. ill. 4 ref. (NAL Call No.: 421 J822).

0499

Effects of insecticides on populations of the vegetable leafminer (Liriomyza sativae) and associated parasites on summer pole tomatoes (pests).
Johnson, M.W. Oatman, E.R.; Wyman, J.A. College Park, Md., Entomological Society of America. Journal of economic entomology. Feb 15, 1980. v. 73 (1). p. 61-66. ill. 12 ref. (NAL Call No.: 421 J822).

0500

Effects of low concentrations of two benzoylphenylureas on Platynota stultana (Lepidoptera: Tortricidae) in the greenhouse.
JEENAI. Hejazi, M.J. Granett, J. College Park, Md. : Entomological Society of America. Journal of economic entomology. June 1986. v. 79 (3). p. 759-763. Includes references. (NAL Call No.: DNAL 421 J822).

0501

Effects of mulches on the population increase of Myzus persicae (Sulzer) on bell peppers.
SENTD. Cartwright, B. Roberts, B.W.; Hartz, T.K.; Edelson, J.V. College Station, Tex. : Southwestern Entomological Society. The Southwestern entomologist. Dec 1990. v. 15 (4). p. 475-479. Includes references. (NAL Call No.: DNAL QL461.S65).

0502

Effects of nonhost plant neighbors on population densities and parasitism rates of the diamondback moth (Lepidoptera: Plutellidae).
EVETEX. Bach, C.E. Tabashnik, B.E. Lanham, Md. : Entomological Society of America. This study examined effects of nonhost plant neighbors on population densities and parasitism rates of the diamondback moth, Plutella xylostella (L.), in Hawaii. Monospecific cabbage plots had greater larval densities, lower numbers of larvae parasitized by Cotesia plutellae (Kurdjumov), and lower percentage of parasitism compared with plots of cabbage interplanted with tomato. Larval densities were affected directly by tomato neighbors rather than by indirect changes in host plant size or quality. However, tomato neighbors did not significantly influence densities of pupae, emerging adults, or total leaf herbivory. Laboratory experiments showed that ovipositing females did not discriminate between cabbage grown alone versus cabbage grown with tomato. These results suggest that tomato neighbors affect long-range host finding or early egg-larval survival, or both, in the field as well as parasitism rates. Environmental entomology. Aug 1990. v. 19 (4). p. 987-994. Includes references. (NAL Call No.: DNAL QL461.E532).

0503

Effects of plant diversity and density on the emigration rate of two ground beetles, Harpalus pennsylvanicus and Evarthrus sodalis (Coleoptera: Carabidae), in a system of tomatoes and beans.
EVETEX. Perfecto, I. Horwith, B.; Vandermeer, J.; Schultz, B.; McGuinness, H.; Dos Santos, A. College Park, Md. : Entomological Society of America. Environmental entomology. Oct 1986. v. 15 (5). p. 1028-1031. ill. Includes references. (NAL Call No.: DNAL QL461.E532).

0504

Effects of planting densities, irrigation, and hornworm larvae on yields in experimental intercrops of tomatoes and cucumbers.
JOSHB. Schultz, B. McGuinness, H.; Horwith, B.; Vandermeer, J.; Phillips, C.; Perfecto, I.; Rosset, P.; Ambrose, R.; Hansen, M. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Sept 1987. v. 112 (5). p. 747-755. Includes references. (NAL Call No.: DNAL 81 SO12).

0505

Effects of Solanum glycoalkaloids on chemosensilla in the Colorado potato beetle. A mechanism of feeding deterrence?.
JCECD. Mitchell, B.K. Harrison, G.D. New York, N.Y. : Plenum Press. Journal of chemical ecology. Jan 1985. v. 11 (1). p. 73-83. Includes references. (NAL Call No.: DNAL QD415.A1J6).

0506

Effects of temperature on the life history of Liriomyza bryoniae (Diptera: Agromyzidae) on tomato.
JEENAI. Minkenberg, O.P.J.M. Helderman, C.A.J. Lanham, Md. : Entomological Society of America. Effects of three constant (15, 20, and 25 degrees C) and one alternating (16-22 degrees C; mean, 19.5 degrees C) temperatures on development, mortality, fecundity, and longevity of Liriomyza bryoniae (Kaltenbach) on plants of the tomato cultivar Moneydor were examined in the laboratory. Development rates for each preadult stage were estimated. Lower thresholds for development and oviposition were at least 8 degrees C and approximately 11 degrees C, respectively. Optimum temperature for development and reproduction within the examined range was 25 degrees C. Development rate from egg to adult with the alternating temperature regime did not differ significantly from that at 20 degrees C, suggesting that development rate responds rapidly to a change in temperature. However, fecundity and oviposition rate with the alternating temperature regime were significantly lower than at 20 degrees C, indicating a slower response of the reproduction to changes in temperature. At all temperatures examined, >85% of oviposition occurred within 100 degree-days of eclosion. Pupal length was positively correlated with temperature but not with development time, fecundity, oviposition rate, or longevity. Intrinsic rate of increase (rm) varied from 0.0457 viable female eggs per female per day at 15 degrees C, to 0.1841 eggs per female per day at 25 degrees C. Net reproduction varied from nine viable female eggs per female at 15 degrees C to 54 eggs per female at 25 degrees C; generation time varied from 49 d at 15 degrees C to 22 d at 25 degrees C. Comparison with previous studies indicates that tomato is a more suitable host plant for L. bryoniae than for Liriomyza tirfolii (Burgess) within the range of 15-25 degrees C. Journal of economic entomology. Feb 1990. v. 83 (1). p. 117-125. ill. Includes references. (NAL Call No.: DNAL 421 J822).

0507

Effects of the allelochemical, alpha-tomatine, on the soybean looper (Lepidoptera: Noctuidae).
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CPB. The transplant drench (0.56 and 1.12 kg AI /ha) resulted in higher first-pick yields (N.J.) in 1984 and 1985, demonstrating the need to protect young tomato transplants from early-season damage by the CPB. The potential for Vydate 2L as a transplant drench application is discussed. Journal of economic entomology. June 1989. v. 82 (3). p. 891-894. Includes references. (NAL Call No.: DNAL 421 J822).

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tomato yield were evaluated from 1982 through 1986. Compared with results of fenvalerate applications, significant reductions in total yield and total fruit number were associated with applications of oxamyl. Significant negative regressions were obtained between percentage infestation by Lepidoptera and total fruit number, total yield, and mean fruit size. Indeterminate fresh-market cultivars produced larger fruit as the total number of fruit decreased. Determinate cultivars did not increased fruit size as total number of fruit decreased. These reductions may result from early-season herbivore effects such as fruit abortion. Implications of economic injury levels for direct pests are discussed. Journal of economic entomology. June 1989. v. 82 (3). p. 935-941. Includes references. (NAL Call No.: DNAL 421 J822).

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EVETEX. Keularts, J.L. Lindquist, R.K. Lanham, Md. : Entomological Society of America. Relative humidity, substrate particle size, and polyethylene soil coverings were evaluated for their effects on the survival of prepupae and pupae of Liriomyza trifolii (Burgess) in greenhouse and laboratory experiments. At 100% RH, pupae developed normally but did not survive because of fungal infection. At other humidities, mortality decreased as humidities increased, with effects greater on prepupae. At humidities less than 50%, prepupal mortalities ranged from 70 to 85%. Pupal mortality reached a maximum of about 50% at 20% RH. The depth of pupation increased from less than 20 mm in particles of 1 mm diameter or less to deeper than 2 mm in coarse sand (less than 2 mm diameter). Pupation appeared to occur normally in all case, but adult emergence was significantly reduced when the depth of the coarsest sand was greater than 200 mm. Experiments were conducted to evaluate effects of white polyethylene soil coverings, on prepupal and pupal survival. Leaf miner populations on tomato were significantly lower in treatments with polyethylene sheeting wetted periodically by overhead irrigation than in treatments with uncovered soil. Drowning of

prepupae on the plastic was the principal reason for this difference. Pavement ants, Tetramorium caespitum (L.), may cause considerable pupal mortality on polyethylene that is not wetted. All of the above-described procedures could be used in a management program for L. trifolii on certain greenhouse crops. At present, the most practical procedure appears to be the use of polyethylene sheeting combined with irrigation. Environmental entomology. June 1989. v. 18 (3). p. 499-503. Includes references. (NAL Call No.: DNAL QL461.E532).

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EVETEX. Roltsch, W.J. Gage, S.H. Lanham, Md. : Entomological Society of America. This study describes the influence of tomato, Lycopersicon esculentum Mill, and bean plant, Phaseolus vulgaris L., intercropping on the potato leafhopper, Empoasca fabae (Harris). The field design consisted of a single density of snap bean plants intercropped with a gradient of tomato plant densities. Leafhopper oviposition, nymph and natural enemy populations, and plant growth were monitored throughout two seasons. A complementary laboratory study analyzed the potential influence of host plant quality upon its acceptability for oviposition by potato leafhopper. Leafhopper densities in medium to high density intercrop subplots were less than 25% of those populations on bean planted alone during periods of high leafhopper population densities. Differences in nymphal counts between treatments were a function of oviposition, not differential nymphal mortality from natural enemies or host plant resistance. Differences in tomato plant density across treatments did not fully account for differences in leafhopper densities. Reduced bean host plant acceptability was observed when choice tests were conducted using beans grown under different fertilizer levels. Up to 76% of eggs were laid in plants containing the greatest amount of total nitrogen. Although tomato is believed to have directly reduced leafhopper densities in the intercrop treatments, the additional effect of host plant quality was also shown to be a potentially important factor. Environmental entomology. June 1990. v. 19 (3). p. 534-543. Includes references. (NAL Call No.: DNAL QL461.E532).

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Influence of conservation tillage practices on populations of Colorado potato beetle (Coleoptera: Chrysomelidae) in rotated and nonrotated tomato fields.
EVETEX. Zehnder, G.W. Linduska, J.J. College Park, Md. : Entomological Society of America. Environmental entomology. Feb 1987. v. 16 (1). p. 135-139. Includes references. (NAL Call No.: DNAL QL461.E532).

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Influence of light quality on translocation of tomato yellow top virus and potato leaf roll virus in Lycopersicon peruvianum and some of its tomato hybrids.
PHYTAJ. Thomas, P.E. Hassan, S.; Mink; G.I. St. Paul, Minn. : American Phytopathological Society. Green peach aphids (Myzus persicae) could not recover tomato yellow top virus (TYTV) or potato leaf roll virus (PLRV) from Lycopersicon peruvianum, U.S. Department of Agriculture Plant Introduction 128655, and some of its hybrid progenies after they were aphid inoculated as seedlings with the same viruses in a glasshouse. After these plants were graft inoculated, however, aphids routinely recovered TYTV and PLRV from some plants but not others. The infected plants were tolerant (asymptomatic). Their apparent immunity to infection by aphid inoculation was expressed in a glasshouse or in direct sunlight but not in houses covered with a translucent fiberglass material. Virus could be recovered from tolerant plants inoculated by aphids in a glasshouse but only after they were transferred to and incubated in fiberglass house. The transfer could be delayed at lease 8 wk after aphid inoculation without affecting the eventual recovery of virus. Virus could not be recovered from new growth of some tolerant plants infected by graft inoculation after the plants were severed from the infected graft scion. Similarly, virus could not be recovered from new growth of some plants infected by aphid inoculation in the fiberglass house after the plants were transferred to the glasshouse. These results are explicable on the basis that a virus transport function that controls release of virus from initially infected cells was completely or partially inhibited in the glasshouse. Phytopathology. Sept 1988. v. 78 (9). p. 1160-1164. Includes references. (NAL Call No.: DNAL 464.8 P56).

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0548

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Datman, E.R.JEENAI. Wyman, J.A.; Van Steenwyk, R.A.; Johnson, M.W. College Park : Entomological Society of America. Journal of economic entomology. Dec 1983. v. 76 (6). p. 1363-1369. Includes references. (NAL Call No.: 421 J822).

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Interaction between spray distribution and systemic activity of insecticides for control of European corn borer (Lepidoptera: Pyralidae) in peppers and snap beans.
JEENAI. Grafius, E. Hayden, J.; Van Ee, G.; Ledebuhr, R. Lanham, Md. : Entomological Society of America. Interactions between spray distribution and insecticidemode of action in relation to control of European corn borer, Ostrinia nubilalis(Hubner), on bell peppers (Capsicum annuum L.), sweet banana peppers (Capsicum annuum L.),and snap beans (Phaseolus vulgaris L.) were investigated. Multiple treatments were applied using either a conventional boom sprayer or an air-curtain sprayer. Materialsevaluated were fenvalerate (local activity) and acephate (systemic activity). Spray droplet distribution was evaluated with UV-spectrophotometric analysis of sprayed dyes. European cornborer egg masses were sampled weekly during the experiment, and crop injury was evaluatedat harvest. Spray deposition with the air-curtain sprayer was much higher on theundersides of the leaves and on fruit than with the conventional boom application. Variabilityof spray deposition between samples also was reduced. Acephate and fenvalerate significantlyreduced banana pepper and bell pepper injury from European corn borer. However,significant reductions in injury due to air-curtain application occurred only with fenvalerate onbell peppers. Systemic activity of the acephate compensated, at least partially, for poorspray distribution with the conventional boom application. Virtually no injury occurred to thesnap beans even in artificially infested, untreated plots. Total mortality caused by glandular trichomes was observed when larvae were introduced onto snap bean plants in the laboratory. Journal of economic entomology. Oct 1990. v. 83 (5). p. 2016-2021. Includes references. (NAL Call No.: DNAL 421 J822).

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Hale, R.L. Willoughby, Ohio : Meister Publishing Company. American vegetable grower. Aug 1983. v. 31 (8). p. 36. (NAL Call No.: 80 C733).

0556

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Isolation and characterization of a granulosis virus from the tomato moth, Lacanobia oleracea, and its potential as a control agent (Biological control).
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Laboratory and field studies on the antifeedant effect of piperonyl butoxide against the Colorado potato beetle on eggplant.
Silcox, C.A. Ghidiu, G.M. Clemson, S.C. : South Carolina Entomological Society. Journal of agricultural entomology. Apr 1986. v. 3 (2). p. 135-142. Includes references. (NAL Call No.: DNAL SB599.J69).

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0568

A more sensitive insect bioassay for naturally occurring plant products.
HJHSA. Schwartz, R.F. Snyder, J.C. Alexandria, Va. : American Society for Horticultural Science. HortScience. Feb 1985. v. 20 (1). p. 62-63. Includes 12 references. (NAL Call No.: DNAL SB1.H6).

0569

Morphological analysis of damage to tomato leaflets by tomato russet mite (Acari: Eriophyidae).
JEENAI. Royalty, R.N. Perring, T.M. College Park, Md. : Entomological Society of America. Abstract: Morphological damage to tomato leaflets by tomato russet mite (TRM), Aculops lycopersici (Massee), was examined by tissue sectioning. Upperand lower epidermal cells were destroyed by mite feeding. A thickened layer of callous tissue formed adjacent to the parenchyma in regions of epidermal cell death. Underlying parenchyma cells were not damaged, probably due to the short stylet length of TRM. Epidermal cell damage was most prominent near the leaflet midvein, extending laterally toward the margin. Studies suggested that as mite density on a tomato leaflet increased, the feeding activity of each individual mite was accelerated. Journal of economic entomology. June 1988. p. 816-820. ill. Includes references. (NAL Call No.: DNAL 421 J822).

0570

Observation of tomato russet mite (Acari: Eriophyidae) damage symptoms in relation to tomato plant development.
JEENAI. Zalom, F.G. Kitzmiller, J.; Wilson, L.T.; Gutierrez, P. College Park, Md. : Entomological Society of America. Journal of economic entomology. Aug 1986. v. 79 (4). p.

940-942. Includes references. (NAL Call No.: DNAL 421 J822).

0571

The occurrence of the pepper weevil, Anthonomus eugenii Cano (Coleoptera: Curculionidae) in Puerto Rico.
JAUPA. Abreu, E. Cruz, C. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Apr 1985. v. 69 (2). p. 223-224. Includes references. (NAL Call No.: DNAL 8 P832J).

0572

Oxamyl as a pretransplant drench treatment for control of the Colorado potato beetle (Coleoptera: Chrysomelidae) on tomato.
JEENAI. Ghidiu, G.M. College Park, Md. : Entomological Society of America. Journal of economic entomology. Dec 1984. v. 77 (6). p. 1549-1552. Includes references. (NAL Call No.: DNAL 421 J822).

0573

Oxamyl residues on eggplant.
Thompson, N.P. Guinivan, R.A.; Bardalaye, P.C.; Poe, S. s.l., The Society. Proceedings of the ... annual meeting of the Florida State Horticultural Society. 1980 (pub 1981). v. 93. p. 280-281. ill. 3 ref. (NAL Call No.: 81 F66).

0574

Oxamyl slow-release tablets, foliar sprays, and transplant drench applications for Colorado potato beetle (Coleoptera: Chrysomelidae) control on tomato.
JEENAI. Ghidiu, G.M. Oetting, R.D. College Park, Md. : Entomological Society of America. Journal of economic entomology. Aug 1987. v. 80 (4). p. 876-879. Includes references. (NAL Call No.: DNAL 421 J822).

0575

Ozone-induced changes in host-plant suitability: interactions of Keiferia lycopersicella and Lycopersicon esculentum.
JCECD. Trumble, J.T. Hare, J.D.; Musselman, R.C.; McCool, P.M. New York, N.Y. : Plenum Press. Journal of chemical ecology. Jan 1987. v. 13 (1). p. 203-218. Includes references. (NAL Call No.: DNAL QD415.A1J6).

0576

Parasites and disease associated with larvae of beet armyworm Spodoptera exigua (Lepidoptera: Notuidae), infesting processing tomatoes in Sinaloa, Mexico.
FETMA. Alvarado-Rodriguez, B. Gainesville, Fla. : Florida Entomological Society. Florida entomologist. Dec 1987. v. 70 (4). p. 444-449. Includes references. (NAL Call No.: DNAL 420 F662).

0577

Parasitism of Heliothis zea (Lepidoptera: Noctuidae) eggs: effect on pest management decision rules for processing tomatoes in the Sacramento Valley of California.
EVETEX. Hoffmann, M.P. Wilson, L.T.; Zalom, F.G.; Hilton, R.J. Lanham, Md. : Entomological Society of America. Egg parasitism of Heliothis zea (Boddie) and other lepidopterous pests was monitored in a field trial of processing tomato cultivars in 1981 and in several late-season commercial fields of processing tomatoes in the Sacramento Valley of California in 1983, 1985, and 1986. Four species of Trichogramma were present: T. pretiosum Riley, T. thalense (Pinto & Oatman), T. deion Pinto & Oatman, and T. brevicapillum Pinto & Platner. Actual parasitism of H. zea eggs exceeded 83% in all fields monitored in 1985 and exceeded 62% in most fields monitored in 1986. Manduca spp. and Trichoplusia ni (Hubner) eggs were also commonly parasitized by Trichogramma spp. The high levels of H. zea egg parasitism recorded in these commercial fields indicates that the current economic threshold, which is based on the abundance of white H. zea eggs, can be increased to account for the mortality caused by Trichogramma. Procedures to incorporate H. zea egg parasitism into the current integrated pest management program for processing tomatoes are proposed. Acceptable fruit quality at harvest in fields that exceeded the current economic threshold during the growing season provides additional support for increasing the threshold. The effect of insecticide applications on H. zea egg parasitism is discussed. Environmental entomology. June 1990. v. 19 (3). p. 753-763. Includes references. (NAL Call No.: DNAL QL461.E532).

0578

Parasitoid helps control fruitworm in Sacramento Valley processing tomatoes.
CAGRA. Hoffmann, M.P. Wilson, L.T.; Zalom, F.G.; Hilton, R.J.; Weakley, C.V. Oakland, Calif. : Division of Agriculture and Natural Resources, University of California. California agriculture. Jan/Feb 1990. v. 44 (1). p. 20-23. ill. (NAL Call No.: DNAL 100 C12CAG).

0579

Pepper cultivars on the northwestern coast of Puerto Rico.
JAUPA. Unander, D.W. Varela Ramirez, F. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. July 1988. v. 72 (3). p. 395-404. Includes references. (NAL Call No.: DNAL 8 P832J).

0580

Pest control in commercial tomato production (Weeds, diseases and insects).
Binning, L.K. Wyman, J.A.; Stevenson, W.R. Madison, Wis. : The Programs. Publication - Cooperative Extension Programs. University of Wisconsin - Extension. Mar 1984. Mar 1984. (2351,rev.). 4 p. ill. (NAL Call No.: S544.3.W6W53).

0581

Pest control in commercial tomato production (Weeds, fungus diseases, insects).
Binning, L.K. Wyman, J.A.; Stevenson, W.R. Madison, Wis., The Programs. Publication - Cooperative Extension Programs, University of Wisconsin Extension. Apr 1981. Apr 1981. (A2351). 3 p. (NAL Call No.: S544.3.W6W53).

0582

Pest control in commercial tomato production (Weeds, insects, diseases).
Binning, L.K. Wyman, J.A.; Stevenson, W.R. Madison : The Programs. Publication - Cooperative Extension Programs. University of Wisconsin - Extension. 1983. 1983. (A2351). 4 p. (NAL Call No.: S544.3.W6W53).

0583

Pesticide applicator for tomatoes (to control insects and fungal diseases).
Tompkins, F.D. TN. Hart, W.E.; Willingham, J.E.; Coffey, D.L. Knoxville, The Station. Tennessee farm and home science - Tennessee Agricultural Experiment Station. Jan/Mar 1980. Jan/Mar 1980. (113). p. 18-20. ill. 4 ref. (NAL Call No.: 100 T25F).

0584

Piperonyl butoxide as a tank-mixed pyrethroid synergist for Colorado potato beetle control on tomato.
Ghidiu, G.M. Silcox, C.A. Clemson, S.C. : South Carolina Entomological Society. Journal of agricultural entomology. Oct 1984. v. 1 (4). p. 360-366. ill. Includes references. (NAL Call No.: DNAL SB599.J69).

0585

Plant and fungal cell wall fragments activate expression of proteinase inhibitor genes for plant defense.
JCECD. Ryan, C.A. Bishop, P.D.; Graham, J.S.; Broadway, R.M.; Duffey, S.S. New York, N.Y. : Plenum Press. Journal of chemical ecology. May 1986. v. 12 (5). p. 1025-1036. ill. Includes references. (NAL Call No.: DNAL QD415.A1J6).

0586

Plant-row-spacing effect on insect activity, bacterial spot severity, and yield for staked-tomato production in west Florida.
Stanley, C.D. Schuster, D.J.; Jones, J.B. S.l. : The Society. Proceedings - Soil and Crop Science Society of Florida. 1988. v. 47. p. 212-214. Includes references. (NAL Call No.: DNAL 56.9 SD32).

0587

Plug-mix and banded-and-incorporated application of systemic insecticides for control of the Colorado potato beetle (Coleoptera:Chrysomelidae) on direct-seeded tomatoes (Leptinotarsa decemlineata).
Romanow, L.R. Kennedy, G.G.; Sanders, D.C. College Park, Md. : Entomological Society of America. Journal of economic entomology. Oct 1984. v. 77 (5). p. 1245-1250. Includes 6 references. (NAL Call No.: 421 J822).

0588

Population dynamics of Heliothis virescens and H. zea (Lepidoptera: Noctuidae) in the Imperial Valley of California.
EVETEX. Pearson, A.C. Sevacherian, V.; Ballmer, G.R.; Vail, P.V.; Henneberry, T.J. Lanham, Md. : Entomological Society of America. Seasonal population densities of Heliothis virescens (F.) and H. zea (Boddie) in the Imperial Valley of California were determined by pheromone-baited trap catches and by egg and larval densities in alfalfa, cotton, and lettuce. Moth populations were present from March to December; low densities during winter and early summer corresponded to conditions favoring winter diapause and summer estivation, respectively. The relative importance of each host in supporting moth populations varied seasonally. The dominant species in alfalfa was H. zea, whereas H. virescens was dominant in cotton and lettuce. The highest population of H. zea in alfalfa occurred in late spring and late summer, in cotton during early summer, and in lettuce during October. The highest populations of H. virescens in alfalfa were found during October, in cotton from July through October, and in lettuce from October through December. Populations in alfalfa and cotton were greater in commercial fields than pesticide-free untreated fields, whereas lettuce populations were greater in untreated fields. Larval mortality from parasitoids and

viruses was infrequent except in alfalfa during late spring and early summer. Environmental entomology. Dec 1989. v. 18 (6). p. 970-979. Includes references. (NAL Call No.: DNAL QL461.E532).

0589

Population trends and principal parasitoids of the vegetable leafminer, Liriomyza sativae, on tomatoes in Alabama.
JESCEP. Chambers, G.C. Kouskolekas, C.A. Tifton, Ga. : The Society. Journal of Entomological Science. Oct 1985. v. 20 (4). p. 454-459. ill. Includes references. (NAL Call No.: DNAL QL461.G4).

0590

Potato leafhopper (Homoptera: Cicadellidae) movement, oviposition, and feeding patterns in relation to host and nonhost vegetation.
EVETEX. Roltsch, W.J. Gage, S.H. Lanham, Md. : Entomological Society of America. The influence of minor and nonhost vegetation on bean, Phaseolus vulgaris L., host plant acceptance by the potato leafhopper, Empoasca fabae (Harris), was studied, with emphasis on the influence of tomato, Lycopersicon esculentum Mill. Cage environments in the laboratory and greenhouse were used to observe leafhopper movement and arrestment and to evaluate performance criteria, including feeding and oviposition. The presence of tomato vegetation suppressed total excreta production (an index of feeding) by 43%. Reduced excreta production was a result of considerable residence time on tomato. In oviposition choice tests, only 28% of the eggs were laid on bean in proximity to tomato. No-choice tests gave similarly significant results. Cabbage also reduced oviposition when in proximity to bean. In choice tests only 32% of the eggs were laid on bean in proximity to cabbage. There were no differences in the average length of time on bean during each arrestment bout in treatment cages containing a combination of bean and companion plant leaves versus the control containing only bean leaves. When evaluating leafhopper movement frequency from surface (i.e., the two leaves and cage surfaces), no significant difference was found when comparing the bean control with the bean and tomato treatment. It is suggested that tomato plants can directly reduce the interaction between bean plants and leafhopper through an extensive "nonproductive" residency time on tomato plants. The importance of evaluating insect and plant interactions based on multiple criteria is discussed. Environmental entomology. June 1990. v. 19 (3). p. 524-533. ill. Includes references. (NAL Call No.: DNAL QL461.E532).

0591

Protection of direct-seeded tomatoes from early Colorado potato beetle injury with a non-woven polyester row cover.
Ghidiu, G.M. Johnson, W.B.; Smith, N.J.; Lashomb, J.H. Clemson, S.C. : South Carolina Entomological Society. Journal of agricultural entomology. Jan 1986. v. 3 (1). p. 41-47. Includes references. (NAL Call No.: DNAL SB599.J69).

0592

Quick test for biochemical characters speeds development of insect resistant tomatoes.
HARAA. Rymal, K.S. Tanticharoenkiat, S.; Hunter, A.G. Auburn, Ala. : The Station. Highlights of agricultural research - Alabama Agricultural Experiment Station. Winter 1986. v. 33 (4). p. 6. ill. (NAL Call No.: DNAL 100 AL1H).

0593

Reduction in photosynthesis of tomato leaflets caused by tomato russet mite (Acari: Eriophyidae).
EVETEX. Royalty, R.N. Perring, T.M. Lanham, Md. : Entomological Society of America. The reduction in net photosynthesis caused by tomato russet mite (TRM), Aculops lycopersici (Massee), feeding was measured. A significant relationship between net photosynthesis and mite-days per cm2 of leaflet was observed. Photosynthesis of healthy tomato leaflets did not increase to compensate for photosynthesis reduction in damaged leaflets. Studies suggest that destruction of guard cells and subsequent reduction of leaf gas exchange were responsible for photosynthesis reduction, and that no photosynthesis-reducing phytotoxin is present in TRM saliva. Environmental entomology. Apr 1989. v. 18 (2). p. 256-260. ill. Includes references. (NAL Call No.: DNAL QL461.E532).

0594

Reflective mulches influence plant survival, production, and insect control in fall tomatoes.
HJHSA. Schalk, J.M. Robbins, M.L.R. Alexandria, Va. : American Society for Horticultural Science. HortScience. Feb 1987. v. 22 (1). p. 30-32. Includes references. (NAL Call No.: DNAL SB1.H6).

0595

Relationship between Colorado potato beetle (Coleoptera: Chrysomelidae) and tobacco hornworm (Lepidoptera: Sphingidae) resistance in Lycopersicon hirsutum f. glabratum.
JEENAI. Sorenson, C.E. Fery, R.L.; Kennedy, G.G. Lanham, Md. : Entomological Society of America. Segregation patterns of glandular

trichome-mediated resistance to Leptinotarsa decemlineata (Say) and to Manduca sexta (L.) were examined in short-term foliage consumption bioassays for the following plant populations: Lycopersicon esculentum Mill. 'Walter', susceptible parent; L. hirsutum f. glabratum C.H. Mull, PI 134417, resistant parent; F2 (('Walter' X PI 134417) X ('Walter' X PI 134417)); 'Walter' X F1 ('Walter' X PI 134417); and F1 ('Walter' X PI 134417) X PI 134417. The component of L. decemlineata resistance associated with the foliar glandular trichomes segregated in a manner identical to M. sexta resitance. Because the levels of resistance to both insect species were highly correlated in segregating F1 backcross populations (r = 0.827; P less than or equal 0.001), a common mechanism is indicated. PI 134417 also possesses a L. decemlineata resistance component associated with the foliar lamellae which causes extensive mortality (98%) of late instars and pupae compared with beetles reared on foliage of the commercial tomato cultivar 'Walter' (average mortality, 57%). F1 plants from crosses between 'Walter' and PI 134417 were shown to lack the trichome-mediated component of resistance to L. decemlineata but to possess significant levels of the lamella-based resistance component (average mortality, 89%). Thus, the lamella-based and trichome-mediated resistance components are under separate genetic control. Journal of economic entomology. Dec 1989. v. 82 (6). p. 1743-1748. Includes references. (NAL Call No.: DNAL 421 J822).

0596

Relationship between trichome density in tomato and parasitism of Heliothis spp. (Lepidoptera: Noctuidae) eggs by Trichogramma spp. (Hymenoptera: Trichogrammatidae).
EVETEX. Kauffman, W.C. Kennedy, G.G. Lanham, Md. : Entomological Society of America. During 1984 through 1986, eggs of Heliothis zea (Boddie) and H. virescens (F.) were collected from field-grown tomato accessions varying in levels of glandular trichome-based resistance to Manduca sexta (L.) (Lepidoptera: Sphingidae) and Leptinotarsa decemlinaeta (Say) (Coleoptera: Chrysomelidae). Eggs were subsequently held in the laboratory to determine levels of egg parasitism, mortality, and hatch. Parasitism of eggs by Trichogramma petiosum Riley and T. exiguum (Pinto and Platner) was greatest on the Lycopersicon esculentum (Mill) cultivar susceptible to M. sexta and was lowest on all backcross lines (L. esculentum X PI 134417) X PI 134417) and the highly resistant L. hirsutum f. glabratum C.H. Muller (PI 134417). Regression analyses indicated that trichome density accounted for the greatest porportion of variance in Trichogramma spp. parasitism of eggs. However, because the methyl ketones 2-tridecanone and 2-undecanone, which contribute to the insect resistance of PI 134417, occur in the glandular trichome tips, their effects on parasitism by Trichogramma could not be separated from the effects of trichome density in this study. Egg density, canopy volume, and number of stem terminals per plot were unrelated to the percentage of parasitism by the Trichogramma studied here. Environmental entomology. Aug 1989. v. 18 (4). p. 698-704. Includes references. (NAL Call No.: DNAL QL461.E532).

0597

Relationships among tomato planting date, potato aphids (Homoptera: Aphididae), and natural enemies.
JEENAI. Perring, T.M. Farrar, C.A.; Toscano, N.C. College Park, Md. : Entomological Society of America. Journal of economic entomology. Aug 1988. v. 81 (4). p. 1107-1112. Includes references. (NAL Call No.: DNAL 421 J822).

0598

Release rates for control of green peach aphid (Homoptera: Aphidae) by the predatory midge Aphidoletes aphidimyza (Diptera: Cecidomyiidae) under winter greenhouse conditions.
JEENAI. Gilkeson, L.A. Hill, S.B. College Park, Md. : Entomological Society of America. Journal of economic entomology. Feb 1987. v. 80 (1). p. 147-150. Includes references. (NAL Call No.: DNAL 421 J822).

0599

Reproduction of Dacnusa sibirica (Hymenoptera: Braconidae), and endoparasitoid of leafminer Liriomyza bryoniae (Diptera: Agromyzidae) on tomatoes, at constant temperatures.
EVETEX. Minkenberg, O.P.J.M. Lanham, Md. : Entomological Society of America. The parasitoid Dacnusa sibirica Telenga is currently used for seasonal inoculative biological control of the leafminers Liriomyza bryoniae (Kaltenbach) and Liriomyza trifolii (Burgess) on glasshouse vegetables in northwest Europe. The braconid is effective from the beginning of the season until July, when average temperatures vary between 15 and 20 degrees C. To estimate the potential reproduction (RO) of the parasitoid, the effect of temperature (15, 20 and 25 degrees C) on its fecundity, longevity, and oviposition rate was examined in the laboratory. Fecundity and longevity decreased with increasing temperatures, but did not differ significantly between 20 and 25 degrees C. Oviposition rate was highest at 20 degrees C, apparent the optimum temperature for oviposition. The RO of D sibirica decreased with increasing temperatures. Therefore, D. sibirica is expected to be less effective for the biological control of leafminers on tomato at high temperatures. The use of potential growth, RO or r(m), to evaluate parasitoids' effectiveness is discussed. Environmental entomology. June 1990. v. 19 (3). p. 625-629. Includes references. (NAL Call No.: DNAL QL461.E532).

0600

Residual activity of Abamectin against Liriomyza trifolii (Diptera: Agromyzidae).
FETMA. Schuster, D.J. Taylor, J.L. Gainesville, Fla. : Florida Entomological Society. Florida entomologist. Sept 1987. v. 70 (3). p. 351-354. Includes references. (NAL Call No.: DNAL 420 F662).

0601

Response of Liriomyza trifolii (Burgess) to selected insecticides with notes on Hymenopterous parasites.
SENTD. Chandler, L.D. College Station, Tex. : Southwestern Entomological Society. The Southwestern entomologist. Sept 1985. v. 10 (3). p. 228-235. Includes references. (NAL Call No.: DNAL QL461.S65).

0602

Response of Liriomyza trifolii (Diptera:Agromyzidae) to insecticides on tomato.
Schuster, D.J.JEENA. Everett, P.H. College Park : Entomological Society of America. Journal of economic entomology. Oct 1983. v. 76 (5). p. 1170-1174. Includes references. (NAL Call No.: 421 J822).

0603

Screening for resistance to tomato fruitworm and cabbage looper among tomato accessions.
CRPSAY. Sinha, N.K. McLaren, D.G. Madison, Wis. : Crop Science Society of America. Tomato fruitworm (Heliothis zea Boddie) and cabbage looper (Trichoplusia ni, Hubbner) are two destructive insect pests of the cultivated tomato (Lycopersicon esculentum Mill.). The present investigation was conducted to screen wild (L. hirsutum Hump and Bonpl., L. hirsutum f. glabratum Mull.) and cultivated tomato accessions for resistance to larvae of these insects, and to evaluate accession by environment (greenhouse vs. field grown plants), and by insect pest (polyphagous H. zea, vs. oligophagous T. ni) interactions for resistance. A petri dish bioassay technique was used, with larval survival on fresh foliage measured every 24 h over a 96-h period. Mean number of larvae surviving 96 h was taken as a measure of susceptibility of an accession. Number of accessions screened for resistance to H. zea and T. ni were 38 and 33, respectively. Mean larval survival on L. esculentum cultivars ranged from 32 to 52% for H. zea and from 25 to 76% for T. ni. In contrast, six field and three greenhouse grown wild accessions had less than 10% survival of H. zea larvae after 96 h. With few exceptions, all wild accessions were resistant to T. ni, with few or no larvae surviving 96 h. More than 50% of larval mortality occurred in the first 24 h, suggesting the toxic action of phytochemicals as a likely mechanism of insect resistance. Accession by plant growth environment and accession by insect species interactions were both significant. In conclusion, resistance of tomato foliage to insect pest larvae was shown, using a petri dish bioassay procedure, to differ significantly with plant genotype, insect species, and the plant growth environment. Crop science. July/Aug 1989. v. 29 (4). p. 861-868. Includes references. (NAL Call No.: DNAL 64.8 C883).

0604

Sequential sampling plant, yield loss components and economic thresholds for the pepper weevil, Anthonomus eugenii Cano (Coleoptera: Curculionidae).
JAUPA. Segarra-Carmona, A.E. Pantoja, A. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. July 1988. v. 72 (3). p. 375-385. Includes references. (NAL Call No.: DNAL 8 P832J).

0605

Sesquiterpenes in glandular trichomes of a wild tomato species and toxicity to the Colorado potato beetle.
JAFCAU. Carter, C.D. Gianfagna, T.J.; Sacalis, J.N. Washington, D.C. : American Chemical Society. Journal of agricultural and food chemistry. Sept/Oct 1989. v. 37 (5). p. 1425-1428. Includes references. (NAL Call No.: DNAL 381 J8223).

0606

Space fumigation tests against selected greenhouse pests, 1977 (Coleus, tomatoes, lima beans).
Webb, R.E. AR~AR-BARC. Cawley, B.M. Jr. Reprints.United States. Agricultural Research Service. (NAL Call No.: aS21.A8U5/ARS).

0607

Space fumigation tests against selected greenhouse pests, 1978 (Coleus, lima beans, tomatoes).
Webb, R.E. AR~AR-BARC. Pilitt, D.R.; Neal, J.W. Jr.; Cawley, B.M. Jr. Reprints.United States. Dept. of Agriculture. Science and Education Administration. Agricultural Research. (NAL Call No.: aS21.A8U5/AR).

0608

Spatial dispersion and sequential sampling plan of the southern green stink bug (Hemiptera: Pentatomidae) on fresh market tomatoes.
EVETEX. Lye, B.H. Story, R.N. Lanham, Md. : Entomological Society of America. The spatial dispersion and sampling methodology of the

southern green stink bug (SGSB), Nezara viridula (L.), were studied on fresh market tomatoes, Lycopersicum esculentum Mill. A visual count was used to sample SGSB populations from horizontal plant strata. More SGSB individuals were sampled from fruit clusters than from vegetative structures and samples from fruit clusters had the lowest coefficients of variation (CV) and the highest mean SGSB counts. Values of mean SGSB, CV, relative variation, and relative net precision indicated that the penultimate fruit cluster was the most efficient sampling unit among plant strata. Time consumed in counting SGSB on each stratum ranged from 3 to 10 s and showed little variation in mean or CV values. Regression equations estimating whole-plant populations of SGSB from individual fruit clusters were developed. The between-plant dispersion of SGSB fitted a negative binomial distribution with a moderate aggregation. A sequential sampling plan using the penultimate fruit cluster as a sample unit was developed to classify SGSB populations into light, moderate, and severe damage levels. Environmental entomology. Feb 1989. v. 18. p. 139-144. Includes references. (NAL Call No.: DNAL QL461.E532).

0609

Spraying and dusting tomatoes (Disease and insect control in home gardens).
Jones, B.F. Johnson, D.R.; McDaniel, M.C.; Hirrel, M. Little Rock : The Service. Leaflet EL - Arkansas University, Cooperative Extension Service. May 1983. May 1983. (217rev.). 12 p. (NAL Call No.: 275.29 AR4LE).

0610

Spraying and dusting tomatoes (Disease control, insect control).
Jones, B.F. Johnson, D.R.; McDaniel, M.C.; Hirrel, M. Little Rock, Ark., The Service. Leaflet EL - Arkansas University, Cooperative Extension Service. May 1982. May 1982. (217). 12 p. (NAL Call No.: 275.29 AR4LE).

0611

Timing pesticide applications for control of Heliothis zea (Boddie) (Lepidoptera: Noctuidae), Alternaria solani (Ell. and G. Martin) Sor., and Phytophthora infestans (Mont.) De Bary, on Tomatoes in western North Carolina.
Walgenbach, J.F. Shoemaker, P.B.; Sorenson, K.A. Clemson, S.C. : South Carolina Entomological Society. Journal of agricultural entomology. July 1989. v. 6 (3). p. 159-168. Includes references. (NAL Call No.: DNAL SB599.J69).

0612

Tomato pinworm (Keiferia lycopersicella): larval survival, development, and damage on tomato treated with organotin compounds.
Schuster, D.J. College Park, Md., Entomological Society of America. Journal of economic entomology. Apr 1980. v. 73 (2). p. 310-312. ill. 4 ref. (NAL Call No.: 421 J822).

0613

Tomato pinworm (Lepidoptera: Gelechiidae) artificial infestation: effect on foliar and fruit injury of ground tomatoes.
JEENAI. Pena, J.E. Pohronezny, K.; Waddill, V.H.; Stimac, J. College Park, Md. : Entomological Society of America. Journal of economic entomology. Aug 1986. v. 79 (4). p. 957-960. Includes references. (NAL Call No.: DNAL 421 J822).

0614

Tomato pinworm: reduction of egg hatch with insecticides (Keiferia lycopersicella, Florida).
Schuster, D.J. College Park, Md., Entomological Society of America. Journal of economic entomology. Feb 1982. v. 75 (1). p. 144-146. 10 ref. (NAL Call No.: 421 J822).

0615

Tomato spotted wilt virus: from greenhouse flowers to field vegetables.
Zitter, T. Batavia, N.Y. : Agricultural Div. of Coop Extension, Four Western Plain Counties, N.Y. State. Ag impact. Mar 1989. v. 16 (3). p. 15-16. (NAL Call No.: DNAL S544.3.N7A45).

0616

Tomato spotted wilt virus in Minnesota.
Pfleger, F.L. Ascerno, M.E. Minneapolis, Minn. : Agricultural Extension Service, University of Minnesota. Minnesota State florists' bulletin. June 1989. v. 38 (3). p. 8-12. Includes references. (NAL Call No.: DNAL 275.28 M664).

0617

Tomato yield loss as a result of simulated Colorado potato beetle (Coleoptera: Chrysomelidae) feeding (Leptinotarsa decemlineata, model).
Cantelo, W.W.EVETB. Cantwell, G.E. College Park : Entomological Society of America. Environmental entomology. Dec 1983. v. 12 (6). p. 1646-1651. Includes references. (NAL Call No.: QL461.E532).

0618

Tomatoes--pest control.
Binning, L.K. WI. Wyman, J.A.; Stevenson, W.R. Madison, Wis., The Programs. Publication - Cooperative Extension Programs, University of Wisconsin Extension.Wisconsin. University. Cooperative Extension Programs. Jan 1980. Jan 1980. (A2351). 3 p. ill. (NAL Call No.: S544.3.W6W53).

0619

Toxicity of alpha-tomatine to larvae of the Mediterranean fruit fly (Diptera:Tephritidae).
JEENAI. Chan, H.T. Jr. Tam, S.Y.T. College Park, Md. : Entomological Society of America. Journal of economic entomology. Apr 1985. v. 78 (2). p. 305-307. ill. Includes references. (NAL Call No.: DNAL 421 J822).

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Toxicity studies of analogs of 2-tridecanone, a naturally occurring toxicant from a wild tomato (Heliothis zea, tomato fruitworm, insect toxicity).
Dimock, M.B. Kennedy, G.G.; Williams, W.G. New York, N.Y., Plenum Press. Journal of chemical ecology. May 1982. v. 8 (5). p. 837-842. 11 ref. (NAL Call No.: QD415.A1J6).

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Trichogramma spp. (Hymenoptera: Trichogrammatidae): field hosts and multiple parasitism in North Carolina.
JESCEP. Thomson, M.S. Stinner, R.E. Tifton, Ga. : Georgia Entomological Society. Journal of entomological science. Apr 1989. v. 24 (2). p. 232-240. Includes references. (NAL Call No.: DNAL QL461.G4).

0622

Trichome secretion composition, trichome densities, and spider mite resistance of ten accessions of Lycopersicon hirsutum.
JOSHB. Weston, P.A. Johnson, D.A.; Burton, H.T.; Snyder, J.C. Alexandria, Va. : The Society. Trichome secretion composition, glandular trichome densities, and spider mite resistance were measured for 10 accessions of Lycopersicon hirsutum Humb. & Bonpl., a wild, South American relative of tomato exhibiting high arthropod resistance. The sesquiterpene hydrocarbons zingiberene and gamma-elemene were identified as major volatile components of Type VI trichome secretions from L. hirsutum f. typicum (hir) plant introduction (PI) 251303. These compounds predominated trichome secretions from five other hir accessions, whereas the methyl ketones 2-undecanone and 2-tridecanone predominated trichome secretions from five accessions of L. hirsutum f. glabratum (gla). Type IV trichome densities were greater on gla than on hir accessions, whereas Type VI trichome densities were greater on hir than on gla. Type VI trichome densities were greater on plants cultured under a 14- to 15-hr photoperiod (LD) than on plants cultured under an 8-hr photoperiod (SD) for gla, but not hir, accessions. Type IV trichome densities were greater under SD than under LD conditions for all accessions. In general, hir accessions were more resistant to mites (Tetranychus urticae Koch) than gla accessions. Spider mite resistance was correlated with Type IV trichome density on hir, but not on gla, accessions. Differences in Type IV trichome densities alone between hir and gla do not explain the greater mite resistance of hir accessions. Journal of the American Society for Horticultural Science. May 1989. v. 114 (3). p. 492-498. ill. Includes references. (NAL Call No.: DNAL 81 SO12).

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Two artificial larval diets for rearing Dacus latifrons (Diptera: Tephritidae).
JEENAI. Vargas, R.I. Mitchell, S. College Park, Md. : Entomological Society of America. Journal of economic entomology. Dec 1987. v. 80 (6). p. 1337-1339. Includes references. (NAL Call No.: DNAL 421 J822).

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Use of biological control measures in the intensive management of insect pests in New Jersey.
Lashomb, J.H. Metterhouse, W.; Chianese, R. Greenbelt, Md. : Institute for Alternative Agriculture. The U.S. public is epxressing strong preference for the use of biological control methods in the management of U.S. agricultural, forest and rangeland insect pests. This follows from a widespread understanding among citizens that synthetic insecticides have potentially harmful side effects on humans and that they are spreading increasingly as pollutants in the environment. Major recent increases in the number of pesticide-resistant insect species also put pressure on the agricultural community toward adoption of alternative non-agchemical plant and animal protection strategies. Movement in the direction of such alternatives has been facilitated by the fact that in the last two decades much progress has been made in Integrated Pest Management (IPM) through an improved understanding of the interactions of pests with their hosts. In that time period, many advances have been made in describing and predicting insect movement, seasonal cycles, and the effects of secondary plant compounds on insect reproduction. Simultaneously, much has been learned about the behavior, physiology, and population dynamics of insect parasitoids, i.e. parasites on insect pests. In the 1990's and subsequently, Biological Control Intensive Pest Management (BCIPM) will require continuing research to attain needed advancement in knowledge of growth and development of host plants, population dynamics of pests and parasitoids, and ecology of secondary pests

that may interfere with implementation of BCIPM programs. Extension and research personnel will then be increasingly able to devise useful control methods for pests within selected cropping systems. We describe here examples to illustrate present and potential future use of BCIPM in different practical plant systems in New Jersey. American journal of alternative agriculture. Paper presented at the "Symposium on Biological Pest Control", Mar 1, 1988, Washington, DC.~ Literature review. Spring/Summer 1988. v. 3 (2/3). p. 77-82. Includes references. (NAL Call No.: DNAL S605.5.A43).

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Variation among populations of the twospotted spider mite, Tetranychus urticae Koch (Acari: Tetranychidae), in measures of fitness and host-acceptance behavior on tomato.
EVETEX. Fry, J.D. College Park, Md. : Entomological Society of America. Seven populations of the twospotted spider mite (Tetranychus urticae Koch) were compared in measures of survival, development rate, reproduction, and host-acceptance behavior on tomato plants. Populations varied widely in the fitness measures and degree of acceptance of tomato. These results, together with those of a previous study, show that although individual populations of T. urticae are broadly polyphagous, different populations may vary considerably in performance on a particular host species or variety. As a result, studies designed to assess the resistance of a cultivar to T. urticae that use only a single mite population may give misleading results. Environmental entomology. Apr 1988. v. 17 (2). p. 287-292. Includes references. (NAL Call No.: DNAL QL461.E532).

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The vegetable leafminer on fresh market tomatoes in southern California (Lycopersicon esculentum, Liriomyza sativae, Liriomyza trifolii, biological control with parasitic Hymenoptera).
Johnson, M.W. Oatman, E.R.; Toscano, N.C.; Welter, S.C.; Trumble, J.T. Berkeley : The Station. California agriculture - California Agricultural Experiment Station. Jan/Feb 1984. v. 38 (1/2). p. 10-11. ill. (NAL Call No.: 100 C12CAG).

0627

Weed, insect, and disease control guide: eggplant, peppers, tomatoes.
Waters, Luther Jr. Bodt, Paul F.; Lofgren, John A.; Noetzel, David M.; Pfleger, F. L.; Bissonnette, Howard L.& Commercial vegetable. Document available from: University of Minnesota, Bulletin Room, 1420 Eckles Avenue, St. Paul, Minnesota 55108 1981. Lists herbicide, insecticide and fungicide suggestions for eggplants, tomatoes an peppers. 4 p. : ill. (NAL Call No.: Document available from source.).(NAL Call No.: Ext. Folder 597).

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Wound-induced proteinase inhibitors from tomato leaves. I. The cDNA-deduced primary structure of pre-inhibitor I and its post-translational processing.
JBCHA3. Graham, J.S. Pearce, G.; Merryweather, J.; Titani, K.; Ericsson, L.; Ryan, C.A. Baltimore, Md. : American Society of Biological Chemists. The Journal of biological chemistry. June 10, 1985. v. 260 (11). p. 6555-6560. ill. Includes 50 references. (NAL Call No.: DNAL 381 J824).

0629

Assessment of yield losses due to root-knot nematode Meloidogyne incognita race 3 in tomato, brinjal and bittergourd.
Darekar, K.S. Mhase, N.L. Raleigh, N.C. : Crop Nematode Research & Control Project . International nematology network newsletter. Dec 1988. v. 5 (4). p. 7-9. Includes references. (NAL Call No.: DNAL SB998.N45I5).

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Biological control of Meloidogyne by Paecilomyces lilacinus and Pasteuria penetrans.
JONEB. Dube, B. Smart, G.C. Jr. Raleigh, N.C. : Society of Nematologists. Journal of nematology. Apr 1987. v. 19 (2). p. 222-227. Includes references. (NAL Call No.: DNAL QL391.N4J62).

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Biological control of Meloidogyne hapla on alfalfa and tomato with the fungus Meria coniospora.
JONEB. Townshend, J.L. Meskine, M.; Barron, G.L. Raleigh, N.C. : Society of Nematologists. Journal of nematology. Apr 1989. v. 21 (2). p. 179-183. Includes references. (NAL Call No.: DNAL QL391.N4J62).

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Biological control of Meloidogyne javanica with Bacillus penetrans (Root-knot nematodes, mode of action of the pathogen, Lycopersicon esculentum, tomato roots).
Stirling, G.R.PHYTAJ. St. Paul : American Phytopathological Society. Phytopathology. Jan 1984. v. 74 (1). p. 55-60. ill. Includes references. (NAL Call No.: 464.8 P56).

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Chemical control of Meloidogyne incognita, Rotylenchulus reniformis and Anthonomus eugenii in Capsicum annuum and Capsicum frutescens.
NMTPA. Acosta, N. Vicente, N.; Abreu, E.; Medina-Gaud, S. Auburn, Ala. : Organization of Tropical American Nematologists. Nematropica. Dec 1987. v. 17 (2). p. 163-169. Includes references. (NAL Call No.: DNAL SB998.N4N4).

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NMTPA. Rodriguez-Kabana, R. Boube, D.; Young, R.W. Auburn, Ala. : Organization of Tropical American Nematologists. Nematropica. Dec 1990. v. 20 (2). p. 153-168. Includes references. (NAL Call No.: DNAL SB998.N4N4).

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Maheswari, T.U. Mani, A. Raleigh, N.C. : Crop Nematode Research & Control Project . International nematology network newsletter. Sept 1988. v. 5 (3). p. 10-11. Includes references. (NAL Call No.: DNAL SB998.N45I5).

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McSorley, R. McMillan, R.T.; Parrado, J.L. s.l. : The Society. Proceedings of the ... annual meeting of the Florida State Horticulture Society. 1986 (pub. 1987). v. 99. p. 350-353. Includes references. (NAL Call No.: DNAL SB319.2.F6F56).

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JONEB. Greco, N. Elia, F.; Brandonisio, A. Raleigh, N.C. : Society of Nematologists. Journal of nematology. July 1986. v. 18 (3). p. 359-364. Includes 15 references. (NAL Call No.: DNAL QL391.N4J62).

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Control of root-knot nematode on processing tomatoes, 1981 (Tomato (Lycopersicon esculentum L. 'Campbells C-37'), root-knot nematode; Meloidogyne incognita).
Averre, C.W. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 202. (NAL Call No.: 464.9 AM31R).

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JDNEB. Marban-Mendoza, N. Jeyaprakash, A.; Jansson, H.B.; Damon, R.A. Jr.; Zuckerman, B.M. Raleigh, N.C. : Society of Nematologists. Journal of nematology. July 1987. v. 19 (3). p. 331-335. ill. Includes references. (NAL Call No.: DNAL QL391.N4J62).

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Control of root-knot nematodes on tomato by the endoparasitic fungus Meria coniospora.
JDNEB. Jansson, H.B. Jeyaprakash, A.; Zuckerman, B.M. Raleigh, N.C. : Society of Nematologists. Journal of nematology. July 1985. v. 17 (3). p. 327-329. Includes 15 references. (NAL Call No.: DNAL QL391.N4J62).

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Eguiguren, R. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 222-223. (NAL Call No.: 464.9 AM31R).

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JDNEB. Nordmeyer, D. Dickson, D.W. Lake Alfred, Fla. : Society of Nematologists. Journal of nematology. Oct 1989. v. 21 (4). p. 472-476. Includes references. (NAL Call No.: DNAL QL391.N4J62).

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Effect of chlorogenic acid as a soil application or a root dip on the infectivity of root-knot nematode on tomato.
Mote, U.N. Raleigh, N.C. : Crop Nematode Research & Control Project . International nematology network newsletter. Sept 1988. v. 5 (3). p. 15-17. Includes references. (NAL Call No.: DNAL SB998.N45I5).

0646

Effect of diurnal changes in soil temperature on resistance to Meloidogyne incognita in tomato (Lycopersicon esculentum, cultivars).
Araujo, M.T. Bassett, M.J.; Augustine, J.J.; Dickson, D.W. Ames, Iowa, Society of Nematologists. Journal of nematology. July 1982. v. 14 (3). p. 414-416. 10 ref. (NAL Call No.: QL391.N4J62).

0647

Effect of inhibitors and stimulators of ethylene production on gall development in Meloidogyne javanica-infected tomato roots.
JDNEB. Glazer, I. Apelbaum, A.; Orion, D. Raleigh, N.C. : Society of Nematologists. Journal of nematology. Apr 1985. v. 17 (2). p. 145-149. Includes 25 references. (NAL Call No.: DNAL QL391.N4J62).

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JDNEB. Di Vito, M. Greco, N.; Carella, A. Raleigh, N.C. : Society of Nematologists. Journal of nematology. Oct 1986. v. 18 (4). p. 487-490. Includes references. (NAL Call No.: DNAL QL391.N4J62).

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Effect of organic amendments, nematicides and solar heating on root-knot nematodes infecting eggplant.
Stephan, Z.A. Michbas, A.H.; Shakir, I. Raleigh, N.C. : Crop Nematode Research & Control Project . International nematology network newsletter. Mar 1989. v. 6 (1). p. 34-35. Includes references. (NAL Call No.: DNAL SB998.N45I5).

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Effect of sodium hypochlorite on hatching of Meloidogyne javanica.
Kanwar, R.S. Jain, R.K.; Bhatti, D.S. Raleigh, N.C. : Crop Nematode Research & Control Project . International nematology network newsletter. Mar 1989. v. 6 (1). p. 17-18. Includes references. (NAL Call No.: DNAL SB998.N45I5).

0651

Effect of soil texture and the clay component on migration (towards a tomato plant) of Meloidogyne incognita second-stage juveniles.
Prot, J.C. Van Gundy, S.D. Ames, Iowa, Society of Nematologists. Journal of nematology. Apr 1981. v. 13 (2). p. 213-217. ill. 16 ref. (NAL Call No.: QL391.N4J62).

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Effect of Temik 15G on root-knot nematodes, Verticillium wilt, nutsedge population, and yield of tomato, 1981 (Meloidogyne incognita, Verticillium albo-atrum, Cyperus rotundus, Lycopersicon esculentum).
Overman, A.J.FNETD. (s.l.) : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1983. v. 38. p. 19. (NAL Call No.: 464.9 AM31R).

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Effect of the fungus Paecilomyces lilacinus on the larval population and root knot formation of Meloidogyne incognita in tomato.
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Effective use of marine algal products in the management of plant-parasitic nematodes.
JONEB. Paracer, S. Tarjan, A.C.; Hodgson, L.M. Raleigh, N.C. : Society of Nematologists. Journal of nematology. Apr 1987. v. 19 (2). p. 194-200. ill. Includes references. (NAL Call No.: DNAL QL391.N4J62).

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Effectiveness of Mocap for control of root-knot nematodes on greenhouse tomatoes--Mocap study IV, 1980 (Tomato (Lycopersicon esculentum 'Vendor'), root-knot nematode; Meloidogyne incognita).
Kharbanda, P.D. Howard, R.J. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 193. (NAL Call No.: 464.9 AM31R).

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Effects of cultivar, soil temperature, and population levels of Meloidogyne incognita on root necrosis and Fusarium wilt of tomatoes (Fusarium oxysporum f. sp. lycopersici, Lycopersicon esculentum).
Abawi, G.S. Barker, K.R. St. Paul, Minn. : American Phytopathological Society. Phytopathology. 1984. v. 74 (4). p. 433-438. ill. Includes references. (NAL Call No.: 464.8 P56).

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JONEB. Stender, C. Glazer, I.; Orion, D. Raleigh, N.C. : Society of Nematologists. Journal of nematology. Jan 1986. v. 18 (1). p. 37-43. ill. Includes 19 references. (NAL Call No.: DNAL QL391.N4J62).

0658

Effects of metam-sodium applied by drip irrigation on root-knot nematodes, Pythium ultimum, and Fusarium sp. in soil and on carrot and tomato roots.
PLDIDE. Roberts, P.A. Magyarosy, A.C.; Matthews, W.C.; May, D.M. St. Paul, Minn. : American Phytopathological Society. Plant disease. Mar 1988. v. 72 (3). p. 213-217. Includes references. (NAL Call No.: DNAL 1.9 P69P).

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PLDRA. Garabedian, S. Van Gundy, S.D. St. Paul, Minn. : American Phytopathological Society. Plant disease. Feb 1985. v. 69 (2). p. 138-140. Includes 8 references. (NAL Call No.: DNAL 1.9 P69P).

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Effects of planting date, small grain crop destruction, fallow, and soil temperature on the management of Meloidogyne incognita.
JONEB. Johnson, A.W. Motsinger, R.E. Lake Alfred, Fla. : Society of Nematologists. Journal of nematology. July 1990. v. 22 (3). p. 348-355. Includes references. (NAL Call No.: DNAL QL391.N4J62).

0661

Effects of rhizobacteria on root-knot nematodes and gall formation.
PHYTAJ. Becker, J.O. Zavaleta-Mejia, E.; Colbert, S.F.; Schroth, M.N.; Weinhold, A.R.; Hancock, J.G.; Van Gundy, S.D. St. Paul, Minn. : American Phytopathological Society. Three hundred and fifty-four randomly selected bacteria from plant rhizospheres, when tested for activity against Meloidogyne incognita, caused a wide range of effects from a reduction to an increase of root galling on tomato and cucumber in greenhouse tests. Results were highly variable, even with strains that previously had given significant differences. A bioassay, based on selecting bacterial strains that produced nematicidal compounds in vitro, proved to be a better and more rapid means of identifying promising nematode antagonists. About 1% of more than 5,000 bacteria isolated from rhizospheres of different plants produced detectable compounds that affected the vitality of second-stage juveniles of M. incognita in an in vitro test. Twenty percent of these subsequently reduced the number of galls on cucumber in a soil-free pouch system when applied as a seed treatment. Selected strains were applied as a drench to nonsterile soil infested with M. incognita. White clover plants growing in bacteria-treated soil had fewer galls and larger root systems. Both plant top and root weights were significantly greater compared with the nontreated control. Phytopathology. Nov 1988. v. 78 (11). p. 1466-1469. ill. Includes references. (NAL Call No.: DNAL 464.8 P56).

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Efficacy of methyl bromide-chloropicrin and ethylene dibromide-chloropicrin mixtures for control of nematodes (Paratrichodorus (N.) christiei, Meloidogyne incongnita) and Verticillium wilt of tomato (Verticillium albo-atrum).
Overman, A.J. Jones, J.P. s.l., The Society. Proceedings of the ... annual meeting of the Florida State Horticultural Society. 1980 (pub 1981). v. 93. p. 248-250. 20 ref. (NAL Call No.: 81 F66).

0664

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0665

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Javed, N. Chohan, R.A.; Shahid, A.A. Raleigh, N.C. : Crop Nematode Research & Control Project . International nematology network newsletter. Sept 1989. v. 6 (3). p. 34-36. Includes references. (NAL Call No.: DNAL SB998.N45I5).

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Evaluation of various pesticides for the control of aphids, mites and nematodes in peppers.
JAUPA. Cruz, C. Acosta, N.; Negron, J.; Armstorng, A. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Oct 1984. v. 68 (4). p. 457-465. Includes 7 references. (NAL Call No.: DNAL 8 P832J).

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Extremely sensitive thermotaxis of the nematode Meloidogyne incognita.
JONEB. Pline, M. Diez, J.A.; Dusenbery, D.B. Raleigh, N.C. : Society of Nematologists. Journal of nematology. Oct 1988. v. 20 (4). p. 605-608. Includes references. (NAL Call No.: DNAL QL391.N4J62).

0668

Fresh conifer bark reduces root-knot nematode galling of greenhouse tomatoes.
HJHSA. McGrady, J.J. Cotter, D.J. Alexandria, Va. : American Society for Horticultural Science. HortScience. Dec 1989. v. 24 (6). p. 973-975. Includes references. (NAL Call No.: DNAL SB1.H6).

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FNETD. Shoemaker, P.B. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1986. v. 41. p. 82. (NAL Call No.: ONAL 464.9 AM31R).

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Genetic basis of the epidemiologic effects of resistance to Meloidogyne incognita in the tomato cultivar small fry.
Bost, S.C.JONEB. Triantaphyllou, A.C. Ames : Society of Nematologists. Journal of nematology. Oct 1982. v. 14 (4). p. 540-544. Includes references. (NAL Call No.: QL391.N4J62).

0671

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JONEB. Townshend, J.L. Lake Alfred, Fla. : Society of Nematologists. Journal of nematology. Apr 1990. v. 22 (2). p. 170-175. Includes references. (NAL Call No.: ONAL QL391.N4J62).

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JONEB. Cabanillas, E. Barker, K.R.; Nelson, L.A. Raleigh, N.C. : Society of Nematologists. Journal of nematology. Apr 1989. v. 21 (2). p. 164-172. Includes references. (NAL Call No.: DNAL QL391.N4J62).

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Osman, A.A. Viglierchio, D.R. Ames, Iowa, Society of Nematologists. Journal of nematology. Oct 1981. v. 13 (4). p. 544-546. 12 ref. (NAL Call No.: QL391.N4J62).

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Histology of the interactions of Paecilomyces lilacinus with Meloidogyne incognita on tomato.
JONEB. Cabanillas, E. Barker, K.R.; Oaykin, M.E. Raleigh, N.C. : Society of Nematologists. Journal of nematology. July 1988. v. 20 (3). p. 362-365. ill. Includes references. (NAL Call No.: DNAL QL391.N4J62).

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Impact of Paecilomyces lilacinus inoculum level and application time on control of Meloidogyne incognita on tomato.
JONEB. Cabanillas, E. Barker, K.R. Raleigh, N.C. : Society of Nematologists. Journal of nematology. Jan 1989. v. 21 (1). p. 115-120. Includes references. (NAL Call No.: DNAL QL391.N4J62).

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JONEB. Glazer, I. Orion, O. Raleigh, N.C. : Society of Nematologists. Journal of nematology. Jan 1985. v. 17 (1). p. 21-24. Includes references. (NAL Call No.: DNAL QL391.N4J62).

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Influence of fumigant nematicides on southern root-knot nematodes and chile pepper yields, 1981 (Meloidogyne incognita, Capsicum annuum).
Thomas, S.H.FNETD. (s.l.) : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1983. v. 38. p. 5. (NAL Call No.: 464.9 AM31R).

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Influence of inoculum levels of fungus Paecilomyces lilacinus (Thom) Samson on the biocontrol of root-knot nematode, Meloidogyne incognita (Chitwood).
Sharma, A. Trivedi, P.C. Raleigh, N.C. : Crop Nematode Research & Control Project . International nematology network newsletter. June 1989. v. 6 (2). p. 27-29. Includes references. (NAL Call No.: ONAL SB998.N45I5).

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Insect and nematode control recommendations for tomatoes.
Toscano, N.C. CA. Datman, E.R.; Van Steenwyk, E.A. (comps.). Berkeley, The Service. Leaflet - Division of Agricultural Sciences, University of California.California. University, Berkeley. Cooperative Extension Service. Feb 1980. Feb 1980. (21138). 13 p. ill. (NAL Call No.: S544.3.C2C3).

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Aerial application vs fungigation for control of tomato diseases, 1980 (Tomato (Lycopersicon esculentum 'C-37'), early blight; Alternaria solani, Septoria blight; Septoria lycopersici, bacterial leaf spot; Xanthomonas vesicatoria, bacterial canker; Corynebacterium michiganense, anthracnose; Colletotrichum phomoides, buckeye rot; Phytophthora parasitica).
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PLDIDE. Brown, J.E. Stevens, C.; Osborn, M.C.; Bryce, H.M. St. Paul, Minn. : American Phytopathological Society. Plant disease. Nov 1989. v. 73 (11). p. 930-932. Includes references. (NAL Call No.: DNAL 1.9 P69P).

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Chemical control of anthracnose bacterial speck and buckeye rot on processing tomatoes, 1985.
FNETD. Riedel, R.M. Shambaugh, T.S. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1986. v. 41. p. 65-66. (NAL Call No.: DNAL 464.9 AM31R).

0730

Chemical control of foliar diseases of peanuts, peppers, and onions as affected by spray nozzle types, nozzle orientations, spray intervals, and adjuvants.
PLDRA. Kucharek, T.A. Cullen, R.E.; Stall, R.E.; Llewellyn, B. St. Paul, Minn. : American Phytopathological Society. Plant disease. June 1986. v. 70 (6). p. 583-586. Includes 15 references. (NAL Call No.: DNAL 1.9 P69P).

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Cloned DNA probes for identification of Phytophthora parasitica.
PHYTA. Goodwin, P.H. Kirkpatrick, B.C.; Duniway, J.M. St. Paul, Minn. : American Phytopathological Society. Chromosomal DNA of Phytophthora parasitica, digested with HindIII and EcoRI, was ligated to pUC8 and used to transform Escherichia coli. Three recombinant

plasmids were identified that hybridized to P. parasitica DNA but not to DNA of other Phytophthora species, healthy tomato roots, and Pythium species. DNA from all isolates of P. parasitica tested, including P. parasitica var. nicotianae, hybridized strongly with the probes. Southern blot hybridizations revealed that the probes hybridized to multiple restriction fragments, suggesting that the cloned sequences recognize repetitive DNA. There was no homology between the three cloned DNA fragments of P. parasitica. A non-radioactively labeled DNA probe, chemically modified by sulfonation, was as sensitive as a 32P-labeled DNA probe for the detection of purified P. parasitica DNA. These species-specific DNA probes provide a sensitive new tool for the identification of P. parasitica. Phytopathology. June 1989 v. 79 (6). p. 716-721. ill. Includes references. (NAL Call No.: DNAL 464.8 P56).

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Colonization of crop residue by Fusarium oxysporum f. sp. melonis and other species of Fusarium.
PHYTA. Gordon, T.R. Okamoto, D. St. Paul, Minn. : American Phytopathological Society. Colonization of decomposing roots, and shoot tissue buried in field soil, by the muskmelon wilt pathogen race 2 of Fusarium oxysporum f. sp. melonis was quantified as colony-forming units per gram of tissue. Colonization of the same substrates by F. equiseli, F. solani, and nonpathogenic F. oxysporum was also quantified. F. o. melonis was isolated from roots of the following seven crops both before and 5 days after shoots were severed at the soil line: the muskmelon cultivar PMR-45 (susceptible to Fusarium wilt), the muskmelon cultivar Greenflesh Honey Dew (resistant to Fusarium wilt under field conditions), alfalfa, tomato, sugar beet, cotton, and wheat. The proportion of total root colonization represented by each of the four fungi was the same before and after shoot removal except that, under some conditions, F. equiseti represented a significantly greater proportion of total colonization after shoot removal. Averaged over seven different residue sources (i.e., crops), population densities of F. o. melonis on buried shoot tissue were greater than those of nonpathogenic F. oxysporum. This difference could not be attributed to differences in soil inoculum density of the two fungi or to prior colonization of the shoot tissue by F. o. melonis. Phytopathology. Apr 1990. v. 80 (4). p. 381-386. Includes references. (NAL Call No.: DNAL 464.8 P56).

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Combining ability estimates for early blight resistance in tomato.
JOSHB. Maiero, M. Ng, T.J.; Barksdale, T.H. Alexandria, Va. : The Society. Six inbred tomato (Lycopersicon esculentum Mill.) genotypes and 13 hybrids among them were evaluated at two locations for resistance to early blight (Alternaria solani). The breeding lines 71B2, C1943, and NC EBR-1 were the most resistant, while 'Castlejay' was consistently the most susceptible. Hybrid means for area under the disease progress curve (AUDPC) generally were intermediate to their parental values, indicating quantitative genetic control. Five of the parents were included in a diallel mating design to obtain estimates of general combining ability (GCA) and specific combining ability (SGA) for the resistance trait. Both GCA and SCA were highly significant; the GCA component accounted for 88.2% of the genotypic variation. Journal of the American Society for Horticultural Science. Jan 1989. v. 114 (1). p. 118-121. Includes references. (NAL Call No.: DNAL 81 SO12).

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Conway, K.E. Barnes, G.L.; Motes, J.E.; Andrews, M.; Campbell, R. Stillwater, Okla. : The Service. OSU extension facts - Cooperative Extension Service, Oklahoma State University. Dec 1985. (7625,rev.). 4 p. ill. (NAL Call No.: DNAL S544.3.O5O5).

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Comparative antifungal activity of four phosphonate compounds against isolates of nine Phytophthora species.
PHYTA. Ouimette, D.G. Coffey, M.D. St. Paul, Minn. : American Phytopathological Society. The systemic fungicide potassium phosphonate, three alkyl-substituted phosphonate compounds (monoethyl, dimethyl, and diethyl phosphonate), and potassium hypophosphonate were compared for their activity in vitro against 34 isolates of nine species of Phytophthora. Potassium phosphonate proved to be the most inhibitory compound against most isolates. In contrast, potassium hypophosphonate was the least inhibitory, in some cases over 100 times less than potassium phosphonate. Among the alkyl phosphonates, monoethyl phosphonate was generally more inhibitory than the two dialkyl phosphonates. Compared to diethyl phosphonate, dimethyl phosphonate was either equally or more inhibitory toward the majority of isolates tested. In vivo, the four phosphonate compounds were equally effective in controlling stem rots of Persea indica L. and pepper (Capsicum annuum L.) caused by P. citricola and P. capsici, respectively. Potassium hypophosphonate provided no control of either disease. In contrast, no phosphonate compound was effective in controlling stem rot of pepper caused by a laboratory-produced, phosphonate-resistant mutant of P. capsici. The rapid hydrolysis in plant tissues of the organic alkyl-substituted phosphonates to the more antifungal inorganic phosphonate anion probably explains the similar level of disease control achieved by all four phosphonate compounds. Phytopathology. July 1989. v. 79 (7). p. 761-767. Includes references. (NAL Call No.: DNAL 464.8 P56).

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Comparative studies of two Mucor species causing postharvest decay of tomato and their control (Mucor mucedo, Mucor piriformis).
Moline, H.E. Kuti, J.O. St. Paul, Minn. : American Phytopathological Society. Plant disease. June 1984. v. 68 (6). p. 524-526. Includes references. (NAL Call No.: 1.9 P69P).

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Comparative studies with two Geotrichum species inciting postharvest decays of tomato fruit (Lycopersicon esculentum, sour rot, watery rot, fungicide trials with Geotrichum candidum and Geotrichum penicillatum).
Moline, H.E. St. Paul, American Phytopathological Society. Plant disease. Jan 1984. v. 68 (1). p. 46-48. Includes references. (NAL Call No.: 1.9 P69P).

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Comparison of a forecast-generated system and a weekly spray regimen for early blight control in trellised tomatoes.
TFHSA. Williamson, J.W. Hilty, J.W. Knoxville, Tenn. : The Station. Tennessee farm and home science : progress report - Tennessee Agricultural Experiment Station. Spring 1988. (146). p. 8-12. Includes references. (NAL Call No.: DNAL 100 T25F).

0739

Comparison of FAST with a regular fungicide schedule for tomato early blight control, 1982 (Alternaria solani on Lycopersicon esculentum).
MacNab, A.A.FNETD. Pennypacker, S.P.; Jurchak, T. (s.l.) : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1983. v. 38. p. 110-111. (NAL Call No.: 464.9 AM31R).

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Comparison of Fast with a regular fungicide schedule for tomato early blight control, 1984.
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Comparison of limited application spray schedules for control of early blight of tomato, 1980 (Tomato (Lycopersicon esculentum 'Campbell 28'), early blight; Alternaria solani).
Lewis, G.D. Johnston, S.A. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1981. v. 36. p. 78. (NAL Call No.: 464.9 AM31R).

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A comparison of resistance to Phytophthora parasitica in tomato.
PHYTAJ. Blaker, N.S. Hewitt, J.D. St. Paul, Minn. : American Phytopathological Society. Phytopathology. July 1987. v. 77 (7). p. 1113-1116. Includes references. (NAL Call No.: DNAL 464.8 P56).

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Comparison of tomato early blight control provided by fungicide applications times according to a forecaster and a regular schedule, 1985.
FNETD. MacNab, A.A. Pennypacker, S.P. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1986. v. 41. p. 68. (NAL Call No.: DNAL 464.9 AM31R).

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Control of Alternaria (alternata) rot of tomatoes by postharvest application of imazalil.
Spalding, D.H. AR-SD. St. Paul, Minn., American Phytopathological Society. Plant disease. Feb 1980. v. 64 (2). p. 169-171. ill. 7 ref. (NAL Call No.: 1.9 P69P).

0745

Control of Botrytis stem canker in greenhouse-grown tomatoes, 1979 (Tomato (Lycopersicon esculentum 'Ohio MR-13'), Botrytis stem rot; Botrytis cinerea).
Rowe, R.C. Farley, J.D. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 95. (NAL Call No.: 464.9 AM31R).

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Control of botrytis stem rot in greenhouse tomatoes, 1980 (Tomato (Lycopersicon esculentum L. 'Ohio MR-13'), Botrytis stem rot; Botrytis cinerea).
Rowe, R.C. Farley, J.D. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1981. v. 36. p. 81. (NAL Call No.: 464.9 AM31R).

0748

Control of damping-off in seedbeds of pepper, 1980 (Bell pepper (Capsicum annuum 'Cascadura Ikeda'), damping-off; Phytophthora capsici).
Siqueira, C.B. Reifschneider, J.B. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1981. v. 36. p. 65. (NAL Call No.: 464.9 AM31R).

0749

Control of damping-off of tomatoes by incorporation of fungicides in direct-seeding gel (Pythium aphaniedermatum).
Ohep, J. McMillan, R.T. Jr.; Bryan, H.H.; Cantliffe, D.J. St. Paul, American Phytopathological Society. Plant disease. Jan 1984. v. 68 (1). p. 66-67. Includes references. (NAL Call No.: 1.9 P69P).

0750

Control of damping-off seedbeds with CGA 48988, 1980 (Bell pepper (Capsicum annuum 'Cascadura Ikeda'), damping-off; Phytophthora capsici).
Siqueira, C.B. Reifschneider, J.B. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1981. v. 36. p. 65. (NAL Call No.: 464.9 AM31R).

0751

Control of diseases of processing tomatoes with foliar sprays, 1984.
FNETD. Stephens, C.T. Stebbins, T.C. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1985. v. 40. p. 92. (NAL Call No.: DNAL 464.9 AM31R).

0752

Control of diseases of processing tomatoes with foliar sprays, 1985.
FNETD. Stephens, C.T. Stebbins, T.C. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1986. v. 41. p. 65. (NAL Call No.: DNAL 464.9 AM31R).

0753

Control of early blight and late blight of tomato, 1982 (Alternaria solani, Phytophthora infestans, Lycopersicon esculentum).
Lambe, R.C.FNETD. Price, P.L. (s.l.) : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1983. v. 38. p. 109. (NAL Call No.: 464.9 AM31R).

0754

Control of early blight and Septoria leafspot of tomato, 1979 (Tomato (Lycopersicon esculentum 'Chico III'), early blight; Alternaria solani, septoria leaf spot; Septoria lycopersici).
Lewis, G.D. Johnston, S.A. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 93. (NAL Call No.: 464.9 AM31R).

0755

Control of early blight of tomato with foliar spray mixtures and high fertilizer rates.
Jones, J.P. Jones, J.B. s.l. : The Society. Proceedings of the ... annual meeting of the Florida State Horticulture Society. 1986 (pub. 1987). v. 99. p. 318-321. Includes references. (NAL Call No.: DNAL SB319.2.F6F56).

0756

Control of epidemic of Septoria leaf spot of tomato by resistance (Septoria lycopersica).
Barksdale, T.H. St. Paul, Minn., American Phytopathological Society. Plant disease. Mar 1982. v. 66 c (3). p. 239-240. Includes 6 ref. (NAL Call No.: 1.9 P69P).

0757

Control of fruit and foliar diseases of tomatoes.
Baldwin, R.E. Blacksburg, Va. : Virginia Polytechnic Inst. and State University Cooperative Ext. Service. The Vegetable growers news. July/Aug 1985. v. 40 (1). p. 1,3. (NAL Call No.: DNAL 275.28 V52).

0758

Control of fungal and bacterial diseases of processing tomatoes with foliar sprays, 1985.
FNETD. Dillard, H.R. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1986. v. 41. p. 64. (NAL Call No.: DNAL 464.9 AM31R).

0759

Control of leaf mold in greenhouse tomatoes, 1982 (Fulvia fulva on Lycopersicon esculentum).
Khuri, W.FNETD. Saad, A.T. (s.l.) : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1983. v. 38. p. 109. (NAL Call No.: 464.9 AM31R).

0760

Control of metalaxyl-resistant causal agents of late blight in potato and tomato and downy mildew in cucumber by cymoxanil.
PHYTAJ. Cohen, Y. Grinberger, M. St. Paul, Minn. : American Phytopathological Society. Phytopathology. Sept 1987. v. 77 (9). p. 1283-1288. Includes references. (NAL Call No.: DNAL 464.8 P56).

0761

Control of pepper blight with foliar sprays, 1979 (Pepper (Capsicum annuum var. annuum 'Lady Bell'), blight; Phytophthora capsici).
Johnston, S.A. Springer, J.K. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 77-78. (NAL Call No.: 464.9 AM31R).

0762

Control of Phytophthora root rot of processing tomato with ethazol and metalaxyl (Lycopersicon esculentum, Phytophthora parasitica, fungicides).
Ioannou, N. Grogan, R.G. St. Paul, Minn. : American Phytopathological Society. Plant disease. May 1984. v. 68 (5). p. 429-435. Includes references. (NAL Call No.: 1.9 P69P).

0763

Control of Septoria blight in home grown tomatoes, 1980 (Tomato (Lycopersicon esculentum 'Cannonball'), Septoria blight; Septoria lycopersici).
Lamey, H.A. Hosford, R.M. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1981. v. 36. p. 78. (NAL Call No.: 464.9 AM31R).

0764

Control of the crown rot phase of Phytophthora blight of pepper with fungicide drenches, 1981 (Pepper (Capsicum annuum 'Pip'), Phytophthora blight; Phytophthora capsici).
Johnston, S.A. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 73. (NAL Call No.: 464.9 AM31R).

0765

Control of tomato disease with foliar sprays, 1981 (Tomato (Lycopersicon esculentum 'Pik-red'), early blight; Alternaria solani, leaf spot; Septoria lycopersici, anthracnose; Colletotrichum coccodes).
Stephens, C.T. Stebbins, T.C. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 89. (NAL Call No.: 464.9 AM31R).

0766

Control of tomato diseases with foliar sprays, 1978 (Tomato (Lycopersicon esculentum 'Homestead 24'), early blight; Alternaria solani, bacterial leafspot; Xanthomonas vesicatoria).
Sitterly, W.R. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 96. (NAL Call No.: 464.9 AM31R).

0767

Control of tomato diseases with foliar sprays, 1980 (Tomato (Lycopersicon esculentum 'Basket Vee'), early blight; Alternaria solani, leaf spot, Septoria lycopersici, anthracnose; Colletotrichum coccodes).
Stephens, C.T. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1981. v. 36. p. 82. (NAL Call No.: 464.9 AM31R).

0768

Control of tomato early blight, 1981 (Tomato (Lycopersicon esculentum 'Homestead'), early blight; Alternaria solani).
Sitterly, W.R. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 88. (NAL Call No.: 464.9 AM31R).

0769

Control of tomato fruit rot and early blight by Bravo applications initiated at bi-weekly intervals, 1984.
FNETD. MacNab, A.A. Pennypacker, S.P.; Stevenson, R.E. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1985. v. 40. p. 87. (NAL Call No.: DNAL 464.9 AM31R).

0770

Controlling fruit and foliar disease of tomato (Early blight caused by Alternaria solani and anthracnose or ripe rot caused by Colletotrichum phomoides and soil rot caused by species of Rhizoctonia and Phoma).
Baldwin, R.E. VA. Norfolk, Va., The Service. The Vegetable growers news.Virginia Polytechnic Institute and State University. Cooperative Extension Service. Apr 1980. v. 34 (10). p. 2-3. ill. (NAL Call No.: 275.28 V52).

0771

Copper toxicity in tomato plants.
JEVQAA. Rhoads, F.M. Olson, S.M.; Manning, A. Madison, Wis. : American Society of Agronomy. Copper (Cu)-containing fungicides and bactericides are used extensively for disease control on staked tomatoes (Lycopersicon esculentum Mill.) in North Florida. Since Cu moves very little in most soils, the potential for Cu buildup in tomato fields is substantial over a period of continuous tomato culture. The purpose of this research was to determine the Cu levels of soil and plant tissue, which are associated with reduced growth, and the influence of soil acidity on Cu uptake and growth response of tomatoes to soil Cu. Tomato plants were grown for approximately 6 wk in a greenhouse in pots of soil (Typic Paleudult) containing two levels of calcitic lime and six levels of copper hydroxide in a factorial treatment arrangement. Lime levels were 0 and 3.5 g kg-1 in Experiment 1 and 0 and 7.0 g kg-1 in Experiment 2. Copper levels were 0, 175, 350, 700, 1400, and 2800 mg kg-1 in Experiment 1 and 0, 44, 88, 175, 350, and 700 mg kg-1 in Experiment 2. Tissue-Cu concentration was not a conclusive indicator of Cu toxicity in tomatoes. Soil pH and Mehlich 1-extractable Cu provided sufficient information for determining if soil-cu levels were reducing plant growth. Near-maximum Cu concentration in tomato tissue occurred at soil-Cu levels above 104 mg kg-1. Plant growth was reduced with soil-Cu levels above 150 mg kg-1 and soil pH below 6.5. However, soil-Cu levels above 330 mg kg-1 were necessary to reduce plant growth with soil pH above 6.5. Journal of environmental quality. Apr/June 1989. v. 18 (2). P. 195-197. Includes references. (NAL Call No.: DNAL QH540.J6).

0772

Corky root of tomato in California caused by Pyrenochaeta lycopersici and control by soil fumigation (Brown root rot).
Campbell, R.N. Schweers, V.H.; Hall, D.H. St. Paul, American Phytopathological Society. Plant disease. Aug 1982. v. 66 (8). p. 657-661. 23 ref. (NAL Call No.: 1.9 P69P).

0773

Correlative in vitro and in vivo behavior of mutant strains of Phytophthora palmivora expressing different resistances to phosphorus acid and fosetyl-Na.
PHYTAJ. Dolan, T.E. Coffey, M.D. St. Paul, Minn. : American Phytopathological Society. Phytopathology. July 1988. v. 78 (7). p. 974-978. Includes references. (NAL Call No.: DNAL 464.8 P56).

0774

Cytochemical aspects of chitin breakdown during the parasitic action of a Trichoderma sp. on Fusarium oxysporum f.sp. radicis-lycopersici.
PHYTA. Cherif, M. Benhamou, N. St. Paul, Minn. : American Phytopathological Society. A strain of Trichoderma, isolated from a sample of peat collected in New Brunswick, displays the ability to produce chitinases and inhibits growth of the pathogenic fungus, Fusarium oxysporum f. sp. radicis-lycopersici, in dual culture tests. Scanning electron microscope investigations of hyphal interactions show that growth inhibition of the host mycelium does not result from hyphal penetration by Trichoderma. The noticeable wall alterations along with the rapid collapse and loss of cell turgor of F. o. radicis-lycopersici in areas where Trichoderma was not in direct contact with the host mycelium indicates that extracellular metabolites could be responsible for the observed degradation. The cytochemical localization of N-acetylglucosamine residues in cell walls of F. o. radicis-lycopersici at different times after inoculation revealed that alteration of chitin molecules is an early event preceding wall disruption and leakage of cytoplasm. The observation that N-acetylglucosamine residues are released in the growing medium supports the idea that wall-bound chitin may be rapidly hydrolyzed by an extracellular chitinase produced by Trichoderma. Although it is likely that other lytic enzymes are involved in the complete degradation of mycelial walls of F. o. radicis-lycopersici, the present cytochemical investigation together with biochemical data on chitinase activity provides evidence for a major chitinolytic activity of Trichoderma and indicates that production of this enzyme may be of great significance in the antagonistic process. Phytopathology. Dec 1990. v. 80 (12). p. 1406-1414. ill. Includes references. (NAL Call No.: DNAL 464.8 P56).

0775

Detection of Phytophthora parasitica from soil and host tissue with a species-specific DNA probe.
PHYTA. Goodwin, P.H. English, J.T.; Neher, D.A.; Duniway, J.M.; Kirkpatrick, B.C. St. Paul, Minn. : American Phytopathological Society. Phytophthora parasitica was detected with a species-specific DNA probe by employing several common techniques for isolating P. parasitica from soil, and then extracting DNA

from the increased biomass. DNA of P. parasitica was detected with the probe following dilution plating of infested soil onto semiselective medium covered with a membrane, crushing portions of fungal colonies on a membrane, crushing tomato leaf disk baits on a membrane, and isolating DNA from colonized leaf disks. These methods were sufficiently sensitive to detect propagule concentrations in soil below those associated with yield loss in tomatoes. P. parasitica was also detected in infected tomato roots by modifying the DNA isolation method developed for leaf disk baits. To determine the feasibility of quantifying P. parasitica in soil with a DNA hybridization assay, the amount of P. parasitica DNA detected in leaf disk baits was compared to the number of propagules estimated by the most probable number method for the same soil samples. The relationship between the two sets of data, however, varied with sampling date. Although this assay method did not reliably quantify populations of P. parasitica, the results demonstrate that a DNA probe can detect P. parasitica in soil at population levels comparable to those detected by baiting methods. Phytopathology. Mar 1990. v. 80 (3). p. 277-281. ill. Includes references. (NAL Call No.: DNAL 464.8 P56).

0776

Detoxification of fusaric acid by a fusaric acid-resistant mutant of Pseudomonas solanacearum and its application to biological control of Fusarium wilt of tomato.
PHYTAJ. Toyoda, H. Hashimoto, H.; Utsumi, R.; Kobayashi, H.; Ouchi, S. St. Paul, Minn. : American Phytopathological Society. Bacteria capable of detoxifying fusaric acid were isolated and tested for their ability to protect tomato plants from the wilting disease caused by Fusarium oxysporum f. sp. lycopersici Race 1. The bacteria used were fusaric acid-resistant mutants derived from an avirulent strain of Pseudomonas solanacearum. The capability of the bacteria to detoxify fusaric acid was assayed by incubating tomato callus cultures in filtrates of bacteria that had been grown in the presence of fusaric acid. Gas chromatography indicated that the detoxification of fusaric acid by the bacteria could be due to changes in the carboxyl group in the position alpha to the nitrogen of the compound. Fusaric acid detoxification was also demonstrated by protection of tomato leaf cuttings that had been treated with bacteria before treatment with fusaric acid. Intact tomato plants were protected from wilt when they were pretreated with fusaric acid-detoxifying bacteria before inoculation with the pathogenic fungus. These results suggest that fusaric acid is important in symptom development of wilting disease of tomato, and our approach shows promise for biocontrol. Phytopathology. Oct 1988. v. 78 (10). p. 1307-1311. ill. Includes references. (NAL Call No.: DNAL 464.8 P56).

0777

Diethatyl for hairy galinsoga (Galinsoga ciliata) control in peppers (Capsicum annuum) integrated with cultural practices for phytophthora blight control.
WEESA6. Majek, B.A. Johnston, S.A. Champaign, Ill. : Weed Science Society of America. Weed science. July 1986. v. 34 (4). p. 569-571. Includes 7 references. (NAL Call No.: DNAL 79.8 W41).

0778

Differential activation of expression of a suberization-associated anionic peroxidase gene in near-isogenic resistant and susceptible tomato lines by elicitors of Verticillium albo-atratrum.
PLPHA. Mohan, R. Kolattukudy, P.E. Rockville, Md. : American Society of Plant Physiologists. We tested whether the expression of the suberization-associated anionic peroxidase gene is involved in the timely appearance of the vascular suberized coating involved in the resistance of a tomato line to Verticillium albo-atrum. The mRNA for this peroxidase appeared at a higher level one day earlier in wound-healing fruits of the resistant tomato line than in a near-isogenic susceptible line. Cell cultures from the resistant line, when treated with low levels (nanograms per milliliter) of fungal elicitor, generated the peroxidase mRNA and this apparent activation of the peroxidase gene expression could be detected in minutes, whereas the cells from the susceptible line hardly responded. Plant physiology. Jan 1990. v. 92 (1). p. 276-280. ill. Includes references. (NAL Call No.: DNAL 450 P692).

0779

Differential phytotoxicity of peptides from culture fluids of Verticillium dahliae races 1 and 2 and their relationship to pathogenicity of the fungi on tomato.
PHYTAJ. Nachmias, A. Buchner, V.; Tsror, L.; Burstein, Y.; Keen, N. St. Paul, Minn. : American Phytopathological Society. Phytopathology. Mar 1987. v. 77 (3). p. 506-510. ill. Includes references. (NAL Call No.: DNAL 464.8 P56).

0780

Early blight and fruit rot control of tomatoes, 1979 (Tomato (Lycopersicon esculentum 'Campbell 1327'), anthracnose; Colletotrichum phomoides, soil rot; Rhizoctonia solani, fruit rot; Phoma sp., early blight; Alternaria solani).
Baldwin, R.E. Francis, J.A. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 91. (NAL Call No.: 464.9 AM31R).

0781

Early blight, gray leaf-spot and fruit rot control of tomatoes, 1981 (Tomato (Lycopersicon esculentum 'Campbell 1327'), anthracnose; Colletotrichum phomoides, soil rot; Rhizoctonia solani, fruit rot; Phoma sp., early blight; Alternaria solani, gray leaf-spot; Stemphylium solani).
Baldwin, R.E. Francis, J.A. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 82-83. (NAL Call No.: 464.9 AM31R).

0782

Early blight resistance of tomatoes.
CYGED. Avdeev, Yu.I. Shcherbinin, B.M. New York, N.Y. : Allerton Press. Cytology and genetics. Translated from: TSitologiia i genetika, v. 22 (2), 1988, p. 21-27. (QH573.T75). 1988. v. 22 (2). p. 21-26. Includes references. (NAL Call No.: DNAL QH573.C92).

0783

Edaphic parameters associated with establishment of the biocontrol agent Talaromyces flavus.
PHYTAJ. Fravel, D.R. Marois, J.J. St. Paul, Minn. : American Phytopathological Society. Phytopathology. June 1986. v. 76 (6). p. 643-646. Includes 30 references. (NAL Call No.: DNAL 464.8 P56).

0784

Effect of Bravo sprays and planting dates on disease development and yield from single-harvest processing tomatoes, 1981 (Tomato (Lycopersicon esculentum 'Merit'), early blight; Alternaria solani, anthracnose; Colletotrichum coccodes, other soil rots).
MacNab, A.A. Pennypacker, S.P. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 86. (NAL Call No.: 464.9 AM31R).

0785

Effect of ethanol on the accumulation of antifungal compounds and resistance of tomato to Fusarium oxysproum f.s. lycopersici.
PHYTAJ. Danko, S.J. Corden, M.E. St. Paul, Minn. : American Phytopathological Society. Phytopathology. Dec 1984. v. 74 (12). p. 1475-1479. Includes 16 references. (NAL Call No.: DNAL 464.8 P56).

0786

Effect of ion concentration and sodium:calcium ratio of a nutrient solution on Phytophthora root rot of tomato and zoospore motility and viability of Phytophthora parasitica.
PHYTA. Bouchibi,. N. Van Bruggen, A.H.C.; MacDonald, J.D. St. Paul, Minn. : American Phytopathological Society. In two sets of greenhouse experiments, the effect of four Na:Ca equivalent ratios (0, 1, 5, and 10) on Phytophthora root rot of tomato was studied at two ionic concentrations (2.5 vs. 25 meq L-1 or 25 vs. 50 meq L-1) of a modified Hoagland's solution. Two weeks after planting, the plants were either kept at the same ionic concentration or were shifted from low to high or high to low concentration, and half of the plants in each treatment were inoculated with zoospores of Phytophthora parasitica. The percentage of root rot was assessed visually 2 wk after inoculation. Root rot severity increased significantly with increasing Na:Ca ratios at ion concentrations of 2.5 and 25 meq L-1 before or after inoculation. Salt stress at 50 meq L-1 before inoculation increased root rot. Salt stress at 50 meq L-1 after inoculation reduced root rot caused by an isolate of P. parasitica originating from nonsaline soil, particularly at higher Na:Ca ratios of 5 and 10. Root rot caused by an isolate originating from saline soil was not reduced. Percentages of motile and germinated zoospores decreased in vitro, and those of encysted and lysed zoospores increased with increasing salt concentrations and Na:Ca ratios. These effects were more pronounced for the isolate from nonsaline soil than for the isolate from saline soil. The isolate from saline soil lost its relative salt tolerance after 2 mo in culture. Inoculation of tomato seedlings with this isolate after 2 mo in culture resulted in root rot severity similar to that caused by the isolate from nonsaline soil when salt stress was applied during and after inoculation. Phytopathology. Dec 1990. v. 80 (12). p. 1323-1329. Includes references. (NAL Call No.: DNAL 464.8 P56).

0787

Effect of iron status on verticillium wilt disease and on in vitro production of siderophores by Verticillium dahliae.
JPNUDS. Barash, I. Zion, R.; Krikun, J.; Nachimas, A. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. Paper presented at the "Fourth International Symposium on Iron Nutrition and Interactions in Plants," July 6-9, 1987, University of New Mexico, Albuquerque. June/Nov 1988. v. 11 (6/11). p. 893-905. Includes references. (NAL Call No.: DNAL QK867.J67).

0788

The effect of night temperature and glasshouse ventilatin on the incidence of Botrytis cinerea in a late-planted tomato crop.
CRPTD6. Morgan, W.M. Guildford, Eng. : Butterworths. Crop protection. June 1984. v. 3 (2). p. 243-251. ill. Includes references. (NAL Call No.: DNAL SB599.C8).

0789

Effect of ozone injury and light stress on response of tomato to infection by the vesicular-arbuscular mycorrhizal fungus, Glomus fasciculatus.
McCool, P.M. Menge, J.A.; Taylor, O.C. Alexandria, The Society. Journal of the American Society for Horticultural Science. Sept 1982. v. 107 (5). p. 839-842. ill. 14 ref. (NAL Call No.: 81 S012).

0790

Effect of phosphorus concentration and Glomus intraradices on fusarium crown and root rot of tomatoes.
PHYTAJ. Caron, M. Fortin, J.A.; Richard, C. St. Paul, Minn. : American Phytopathological Society. Phytopathology. Sept 1986. v. 76 (9). p. 942-946. Includes references. (NAL Call No.: DNAL 464.8 P56).

0791

Effect of Pythium ultimum and metalaxyl treatments on root length and mycorrhizal colonization of cotton, onion, and pepper.
PLDIDE. Afek, U. Menge, J.A.; Johnson, E.L.V. St. Paul, Minn. : American Phytopathological Society. Plant disease. Feb 1990. v. 74 (2). p. 117-120. Includes references. (NAL Call No.: DNAL 1.9 P69P).

0792

Effect of radiation, temperature, and moisture on conidial germination of Alternaria solani.
PHYTAJ. Stevenson, R.E. Pennypacker, S.P. St. Paul, Minn. : American Phytopathological Society. Phytopathology. July 1988. v. 78 (7). p. 926-930. ill. Includes references. (NAL Call No.: DNAL 464.8 P56).

0793

Effect of soil matric potential on the formation and indirect germination of sporangia of Phytophthora parasitica, Phytophthora capsici, and Phytophthora cryptogea (Rots of tomatoes, Lycopersicon esculentum).
Bernhardt, E.A. Grogan, R.G. St. Paul, Minn., American Phytopathological Society. Phytopathology. May 1982. v. 72 (5). p. 507-511. Includes 22 ref. (NAL Call No.: 464.8 P56).

0794

Effect of soil-water matric potential and periodic flooding on mortality of pepper caused by Phytophthora capsici.
PHYTA. Bowers, J.H. Mitchell, D.J. St. Paul, Minn. : American Phytopathological Society. Periodic flooding increased the mortality of pepper plants (Capsicum annuum L. 'Early Calwonder') grown in soil infested with 25 oospores of Phytophthora capsici per gram of soil as compared with those grown in infested soil at constant soil-water matric potentials of -2.5 and -12.5 kPa. Plant mortality increased as the number of 24-hr flooding periods at 10-day intervals increased. Plants grown in infested soil at a constant soil-water matric potential of -12.5 kPa were not infected 37 days after transplanting. However, when infested soil was periodically flooded, 20, 53, and 100%, of the plants died after one, two, and three flooding periods, respectively. With a soil-water matric potential of -2.5 kPa, 0, 80, and 100% of the plants died after one, two, and three flooding periods, respectively. Only one of 15 plants was infected at a constant soil-water matric potential of -2.5 kPa. Our results support field observations associating heavy rainfall and subsequent flooding of the soil with increases in disease progress. Phytopathology. Dec 1990. v. 80 (12). p. 1447-1450. Includes references. (NAL Call No.: DNAL 464.8 P56).

0795

Effect of tank-mix holding time on tomato bacterial speck and early blight control, 1981 (Tomato (Lycopersicon esculentum 'VF134'), bacterial speck; Pseudomonas syringae pv tomato, early blight; Alternaria solani).
MacNab, A.A. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 84. (NAL Call No.: 464.9 AM31R).

0796

Effect of Temik 15G on root-knot nematodes, Verticillium wilt, nutsedge population, and yield of tomato, 1981 (Meloidogyne incognita, Verticillium albo-atrum, Cyperus rotundus, Lycopersicon esculentum).
Overman, A.J.FNETD. (s.l.) : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1983. v. 38. p. 19. (NAL Call No.: 464.9 AM31R).

0797

Effect of temperature, wetness duration, and inoculum density on infection and lesion development of Colletotrichum coccodes on tomato fruit.
PHYTA. Dillard, H.R. St. Paul, Minn. : American Phytopathological Society. The influence of temperature on lesion development and sporulation of Colletotrichum coccodes was determined on detached tomato fruit. Lesions did not develop after 8 days of incubation on spray- or puncture-inoculated fruit incubated at 7 C. Lesions diameter of spray- or puncture-inoculated fruit was greatest at 25 or 31 C. Spray-inoculated tomatoes incubated at 25 or 31 C developed more lesions than those incubated at 16 C. The number of conidia produced per lesion increased with increasing temperature from 16 to 28 C and decreased at 31 C. Lesions did not develop on tomato fruit that received 0, 3, or 5 hr of continuous wetness. Disease incidence was 35, 75, 92, 100, 100, 100, and 100% on tomato fruit that received 10, 20, 24, 29, 44, 48, and 53 hr of continuous wetness, respectively. Disease severity increased with increasing hours of wetness duration and peaked at 48 hr. Disease severity increased with increasing inoculum density from 10(1) to 10(6) conidia/ml, and was greatest at 10(6) conidia/ml. Germination of conidia obtained from 7-day-old lesions on tomato fruit incubated in near 100% relative humidity (25 C) ws 73.4%. Germination was 35.7, 36.3, or 24.6%, respectively, after lesions on tomato fruit were exposed to 2, 8, or 24 hr of drying at room temperature (27-30 C) and 55-57% relative humidity. Phytopathology. Oct 1989. v. 79 (10). p. 1063-1066. Includes references. (NAL Call No.: DNAL 464.8 P56).

0798

Effects of cultivar, soil temperature, and population levels of Meloidogyne incognita on root necrosis and Fusarium wilt of tomatoes (Fusarium oxysporum f. sp. lycopersici, Lycopersicon esculentum).
Abawi, G.S. Barker, K.R. St. Paul, Minn. : American Phytopathological Society. Phytopathology. 1984. v. 74 (4). p. 433-438. ill. Includes references. (NAL Call No.: 464.8 P56).

0799

Effects of fumigation and fungal antagonist (Penicillium funiculosum, Trichoderma harzianum, Aspergillus ochraceus) on the relationships of inoculum density to infection incidence and disease severity in Fusarium (oxysporum radicislycopersici) crown rot of tomato.
Marois, J.J. Mitchell, D.J. St. Paul, Minn., American Phytopathological Society. Phytopathology. Feb 1981. v. 71 (2). p. 167-170. ill. 28 ref. (NAL Call No.: 464.8 P56).

0800

Effects of fungal communities on the pathogenic and saprophytic activities of Fusarium oxysporum f. sp. radicis-lycopersici (Obtained from diseased tomatoes).
Marois, J.J. Mitchell, D.J. St. Paul, Minn., American Phytopathological Society. Phytopathology. Dec 1981. v. 71 (12). p. 1251-1256. Includes 23 ref. (NAL Call No.: 464.8 P56).

0801

The effects of genotype and ethephon on Rhizoctonia soil rot of processing tomatoes (Rhizoctonia salani, USA).
Murphy, J.B. McFerran, J.; Goode, M.J. Alexandria, Va. : American Society for Horticultural Science. HortScience. Oct 1984. v. 19 (5). p. 676-677. Includes 12 references. (NAL Call No.: SB1.H6).

0802

Effects of irrigation on buckeye rot of tomato fruit caused by phytophthora parasitica (Lycopersicon esculentum).
Hoy, M.W. Ogawa, J.M.; Duniway, J.M. St. Paul, Minn. : American Phytopathological Society. Phytopathology. 1984. v. 74 (4). p. 474-478. Includes references. (NAL Call No.: 464.8 P56).

0803

Effects of metalaxyl on phycomyceteous fungi and yield of pepper, tomato, and cabbage transplants (Systemic fungicide).
Jaworski, C.A. Phatak, S.C.; Csinos, A. Alexandria, The Society. Journal of the American Society for Horticultural Science. Sept 1982. v. 107 (5). p. 911-913. 16 ref. (NAL Call No.: 81 SO12).

0804

Effects of metam-sodium applied by drip irrigation on root-knot nematodes, Pythium ultimum, and Fusarium sp. in soil and on carrot and tomato roots.
PLDIDE. Roberts, P.A. Magyarosy, A.C.; Matthews, W.C.; May, D.M. St. Paul, Minn. : American Phytopathological Society. Plant disease. Mar 1988. v. 72 (3). p. 213-217. Includes references. (NAL Call No.: DNAL 1.9 P69P).

0805

Effects of nitrate and ammonium nitrogen on severity of Fusarium (oxysporum radicis-lycopersici) foot and root rot and on yield of greenhouse tomatoes.
Jarvis, W.R. Thorpe, H.J. St. Paul, Minn., American Phytopathological Society. Plant disease. Mar 1980. v. 64 (3). p. 309-310. ill. 11 ref. (NAL Call No.: 1.9 P69P).

0806

Effects of the host-selective toxins of Alternaria alternata f. sp. lycopersici on suspension-cultured tomato cells.
PHYTAJ. Fuson, G.B. Pratt, D. St. Paul, Minn. : American Phytopathological Society. Tomato cell cultures were used to investigate the metabolic effects of the host-selective toxins produced by Alternaria alternata f. sp. lycopersici, a pathogen of tomato. Toxin concentrations of approximately 1 microM were sufficient to strongly inhibit cell expansion, accumulation of dry matter, and cell division in suspension cultures. Growth-inhibitory concentrations of toxin did not inhibit respiration, uptake of 3H leucine or its incorporation into protein, or uptake of 3- 14C pyruvate or its incorporation into lipids. The toxins also did not induce potassium ion leakage. The toxins did inhibit uptake of 3H uridine and 3H thymidine but apparently did not inhibit net synthesis of RNA or DNA; the inhibition of uridine and thymidine uptake probably was not the cause of growth inhibition. The toxins apparently did not induce pyrimidine shortage, because toxin sensitivity was unaffected by supplementing cultures with pyrimidines or aspartate. Our results in cultured cells do not support the theory that these toxins inhibit aspartate carbamoyltransferase, an enzyme involved in pyrimidine biosynthesis. Phytopathology. Dec 1988. v. 78 (12,pt.2). p. 1641-1648. Includes references. (NAL Call No.: DNAL 464.8 P56).

0807

Efficacy of methyl bromide-chloropicrin and ethylene dibromide-chloropicrin mixtures for control of nematodes (Paratrichodorus (N.) christiei, Meloidogyne incongnita) and Verticillium wilt of tomato (Verticillium albo-atrum).
Overman, A.J. Jones, J.P. s.l., The Society. Proceedings of the ... annual meeting of the Florida State Horticultural Society. 1980 (pub 1981). v. 93. p. 248-250. 20 ref. (NAL Call No.: 81 F66).

0808

Electrolyte leakage, lipoxygenase, and lipid peroxidation induced in tomato leaf tissue by specific and nonspecific elicitors from Cladosporium fulvum.
PLPHA. Peever, T.L. Higgins, V.J. Rockville, Md. : American Society of Plant Physiologists. Glycoprotein nonspecific elicitor (NSE) and a specific elicitor preparation from intercellular fluids (SE) of tomato (Lycopersicon esculentum Mill. cv Bonny Best or Potentate) infected with race 2.4.5 of Cladosporium fulvum Cooke syn. Fulvia fulva (Cooke) Ciferri were injected into cv Sonatine (resistant to race 2.4.5) to compare electrolyte leakage, lipoxygenase activity, and lipid peroxidation induced in response to these elicitors. Increased electrolyte leakage was induced by NSE or SE; the leakage due to NSE but not to SE was inhibited by the nonsteroidal antiinflammatory drug (NSAID) piroxicam. Under normal photoperiod conditions, higher levels of lipoxygenase activity were detected 6 hours after injection with either elicitor. This activity peaked by 12 hours with both elicitors and declined to control levels by 24 hours when visible necrosis could be detected. Both NSE and SE-induced lipoxygenase was inhibited by pioxicam in vitro. Lipid peroxidation in elicitor-treated tissue was also assayed at 6, 12, and 24 hours after injection using the TBA test for malonaldehyde. Increased peroxidation was detected in response to NSE or SE at 12 hours with similar values obtained at 24 hours. With plants incubated in the dark, lipoxygenase, and lipid peroxidation were similarly induced in SE-injected tissue whereas necrosis induction by SE was light dependent. Plant physiology. July 1989. v. 90 (3). p. 867-875. Includes references. (NAL Call No.: DNAL 450 P692).

0809

Elicitation of diacetylenic compounds in suspension cultured cells of eggplant.
PLPHA. Imoto, S. Dhta, Y. Rockville, Md. : American Society of Plant Physiologists. Plant physiology. Jan 1988. v. 86 (1). p. 176-181. Includes references. (NAL Call No.: DNAL 450 P692).

0810

The epidemiology of powdery mildew on tomatoes.
CAGRA. Correll, J.C. Gordon, T.R.; Elliott, V.J. Berkeley, Calif. : The Station. California agriculture - California Agricultural Experiment Station. Mar/Apr 1988. v. 42 (2). p. 8-10. ill. (NAL Call No.: DNAL 100 C12CAG).

0811

Evaluation of fungicide treatments for tomato disease control, 1979 (Tomato (Lycopersicon esculentum 'Knox'), early blight; Alternaria solani, fruit anthracnose; Colletotrichum coccodes, Septoria leaf blight; Septoria lycopersici).
Stevenson, W.R. Bundy, R. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 97-98. (NAL Call No.: 464.9 AM31R).

0812

Evaluation of fungicides for control of early blight in tomato and their secondary action over the tomato rust mite, 1982 (Alternaria solani, Aculops lycopersici, Lycopersicon esculentum).
Maeso, D.C.FNETD. Nunez, S. (s.l.) : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1983. v. 38. p. 112. (NAL Call No.: 464.9 AM31R).

0813

Evaluation of fungicides for control of fruit and foliage diseases of processing tomatoes, 1981 (Tomato (Lycopersicon esculentum 'Knox'), anthracnose; Colletotrichum coccodes, early blight; Alternaria solani).
Latin, R.X. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 83-84. (NAL Call No.: 464.9 AM31R).

0814

Evaluation of fungicides for control of Phytophthora blight of pepper, 1982 (Phythphthora capsici on Capsicum annuum).
Reifschneider, F.J.B.FNETD. (s.l.) : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1983. v. 38. p. 102. (NAL Call No.: 464.9 AM31R).

0815

Evaluation of fungicides for the control of Sclerotinia blight of eggplant, 1978-79 (Eggplant (Solanum melongena 'Pusa purple long'), blight; Sclerotinia (Whetzelinia) sclerotiorum).
Vishwakarma, S.N. Sitaramaiah, K.; Singh, R.S. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1981. v. 36. p. 61-62. (NAL Call No.: 464.9 AM31R).

0816

Evaluation of fungicides for the control of Sclerotinia blight of eggplant, 1978-79 (Eggplant (Solanum melongena 'Pusa Purple Long'), blight; Sclerotinia (Whetzelinia) sclerotiorum).
Vishwakarma, S.N. Sitaramaiah, K.; Singh, R.S. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 69. (NAL Call No.: 464.9 AM31R).

0817

Evaluation of fungicides for tomato mildew control, 1981 (Tomato (Lycopersicon esculentum 'Del Monte 71-24'), powdery mildew; Leveillula taurica).
Thomson, S.V. Jones, W.B. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 89. (NAL Call No.: 464.9 AM31R).

0818

Evaluation of fungicides for tomato powdery mildew control, 1982 (Leveillula taurica, Lycopersicon esculentum).
Thomson, S.V.FNETD. Bull, C.R.; Jones, W.B. (s.l.) : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1983. v. 38. p. 112. (NAL Call No.: 464.9 AM31R).

0819

Evaluation of tank mixed pesticides for disease control and phytotoxicity on tomato, 1979 (Tomato (Lycopersicon esculentum 'Knox'), early blight; Alternaria solani, fruit anthracnose; Colletotrichum coccodes).
Stevenson, W.R. Bundy, R. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 97. (NAL Call No.: 464.9 AM31R).

0820

Expression of A chimeric polygalacturonase gene in transgenic Rin (ripening inhibitor) tomato fruit.
Giovannoni, J.J. DellaPenna, D.; Lashbrook, C.C.; Bennett, A.B.; Fischer, R.L. New York, N.Y. : Alan R. Liss. Plant biology. In the series analytic: Horticultural Biotechnology / edited by A.B. Bennett and S.D. O'Neill. Proceedings of an International Symposium, August 21-23, 1989, Davis, California. 1990. v. 11. p. 217-227. Includes references. (NAL Call No.: DNAL QH301.P535).

0821

Factors affecting cross-protection in control of Fusarium wilt of tomato (Fusarium oxysporum dianthi used as biocontrol agent).
Wymore, L.A. Baker, R. St. Paul, Minn., American Phytopathological Society. Plant disease. Oct 1982. v. 66 (10). p. 908-910. ill. 22 ref. (NAL Call No.: 1.9 P69P).

0822

Fast timing: a computer program tells tomato growers when to spray.
Pruyne, R. University Park, Pa. : Pennsylvania State University. PennState agriculture. Fall 1987. p. 24-25. ill. (NAL Call No.: DNAL S451.P4P45).

0823

Fate of the fungicide furalaxyl in the nutrient solution of tomato crops by the nutrient film technique.
JAFCAU. Rouchaud, J. Metsue, M.; Benoit, F.; Ceustermans, N.; Vanachter, A. Washington, D.C. : American Chemical Society. Journal of agricultural and food chemistry. Mar/Apr 1989. 37 (2). p. 492-495. Includes references. (NAL Call No.: DNAL 381 J8223).

0824

Foliar diseases of tomatoes.
Gazaway, W. Mullen, J. Auburn, Ala. : The Service. Circular ANR - Cooperative Extension Service, Auburn University. In subseries: Horticulture. Apr 1987. (71). 4 p. ill. (NAL Call No.: DNAL S544.3.A2C47).

0825

Fruit and foliar disease control of tomatoes.
Baldwin, R.E. Blacksburg, Va. : Virginia Polytechnic Inst. and State University Cooperative Ext. Service. The Vegetable growers news. May/June 1987. v. 41 (6). p. 2-3. (NAL Call No.: DNAL 275.28 V52).

0826

Fruit rot and early blight defoliation control on single-harvest processing tomatoes, 1979 (Tomato (Lycopersicon esculentum 'Merit'), early blight; Alternaria solani, anthracnose; Colletotrichum sp., other soil rots).
MacNab, A.A. Pennypacker, S.P. (s.1.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 94. (NAL Call No.: 464.9 AM31R).

0827

Fruit rot and early blight defoliation control on single-harvest processing tomatoes, 1980 (Tomato (Lycopersicon esculentum 'Merit'), early blight; Alternaria solani, anthracnose; Colletotrichum coccodes, other soil rots).
MacNab, A.A. Pennypacker, S.P. (s.1.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1981. v. 36. p. 79-80. (NAL Call No.: 464.9 AM31R).

0828

Fruit rot and early blight defoliation control on single-harvest processing tomatoes, 1981 (Tomato (Lycopersicon esculentum 'Merit'), early blight; Alternaria solani, anthracnose; Colletotrichum coccodes, other soil rots.
MacNab, A.A. Pannypacker, S.P. (s.1.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 86-87. (NAL Call No.: 464.9 AM31R).

0829

Fruit rot and early blight defoliation control on single-harvest processing tomatoes, 1982 (Alternaria solani, Colletotrichum coccodes, Lycopersicon esculentum).
MacNab, A.A.FNETD. Pennypacker, S.P.; Stevenson, R.E. (s.1.) : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1983. v. 38. p. 111. (NAL Call No.: 464.9 AM31R).

0830

Fruit rot and early blight defoliation control on single-harvest processing tomatoes, 1984.
FNETD. MacNab, A.A. Pennypacker, S.P.; Stevenson, R.E. s.1. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1985. v. 40. p. 86. (NAL Call No.: DNAL 464.9 AM31R).

0831

Fumigants in bedded rows for tomato root knot and Verticillium wilt, 1985.
FNETD. Shoemaker, P.B. s.1. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1986. v. 41. p. 82. (NAL Call No.: DNAL 464.9 AM31R).

0832

Fumigation for control of foliar and fruit disease of tomato, 1977 (Tomato (Lycopersicon esculentum 'Campbell 1327'), early blight; Alternaria solani, Septoria blight; Septoria lycopersici, anthracnose; Colletotrichum phomoides).
Potter, H.S. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 95. (NAL Call No.: 464.9 AM31R).

0833

Fungicidal control of tomato blackmold under rainy conditions.
CAGRA. Miyao, E.M. Hall, D.H.; Somerville, P.; Blaker, N. Berkeley, Calif. : The Station. California agriculture - California Agricultural Experiment Station. July/Aug 1986. v. 40 (7/8). p. 7-8. ill. (NAL Call No.: DNAL 100 C12CAG).

0834

Fungicide evaluation for control of tomato early blight and anthracnose, 1978 (Tomato (Lycopersicon esculentum 'Campbell 1327'), early blight; Alternaria solani, anthracnose; Colletotrichum phomoides).
Kantzes, J.G. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 92. (NAL Call No.: 464.9 AM31R).

0835

Fungicide evaluation for early blight and bacterial speck control on tomatoes, 1981 (Tomato (Lycopersicon esculentum), bacterial speck; Pseudomonas syringae pv. tomato, early blight; Alternaria solani).
MacNab, A.A. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 84. (NAL Call No.: 464.9 AM31R).

0836

Fungicide evaluation for foliage blights of tomatoes in Kansas, 1978 (Tomato (Lycopersicon esculentum 'Jet Star'), Septoria leaf spot; Septoria lycopersici, early blight; Alternaria solani).
Nesmith, W.C. Schueneman, T. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 94. (NAL Call No.: 464.9 AM31R).

0837

Fungicide evaluation for tomato anthracnose and early blight, 1980 (Tomato (Lycopersicum esculentum L. 'Heinz 2653'), anthracnose; Colletotrichum coccodes, early blight; Alternaria solani).
Farley, J.D. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1981. v. 36. p. 77-78. (NAL Call No.: 464.9 AM31R).

0838

Fungicide evaluation for tomato foliar diseases, 1985.
FNETD. Shoemaker, P.B. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1986. v. 41. p. 69-70. (NAL Call No.: DNAL 464.9 AM31R).

0839

Fungicide performance on peppers, 1979 (Pepper (Solanum capsicum 'Green Boy'), fruit rot; Alternaria tenuis, Phytophthora spp.).
Abdel-Rahman, M. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 77. (NAL Call No.: 464.9 AM31R).

0840

Fungicides for control of anthracnose, bacterial speck, late blight and buckeye rot on processing tomatoes, 1984.
FNETD. Riedel, R.M. Shambaugh, T.S. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1985. v. 40. p. 90-91. (NAL Call No.: DNAL 464.9 AM31R).

0841

Fungicides for control of powdery mildew in tomato.
CAGRA. Paulus, A.O. Scheuerman, R.W.; Munoz, F.; Osterli, P.; Schrader, W.L.; Otto, H. Berkeley, Calif. : The Station. California agriculture - California Agricultural Experiment Station. July/Aug 1986. v. 40 (7/8). p. 17-18. ill. (NAL Call No.: DNAL 100 C12CAG).

0842

Fungicides for control of tomato anthracnose and early blight, 1984.
FNETD. Lewis, G.D. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1985. v. 40. p. 86. (NAL Call No.: DNAL 464.9 AM31R).

0843

Fungicides for control of tomato anthracnose, 1979 (Tomato (Lycopersicon esculentum 'Heinz 1350), anthracnose; Colletotrichum phomoides).
Lewis, G.D. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 92. (NAL Call No.: 464.9 AM31R).

0844

Fungicides for control of tomato anthracnose, 1982 (Colletotrichum phomoides, Lycopersicon esculentum).
Lewis, G.D.FNETD. (s.l.) : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1983. v. 38. p. 110. (NAL Call No.: 464.9 AM31R).

0845

Fungicides for tomato early blight, 1980 (Tomato (Lycopersicon esculentum 'BC3-28'), early blight; Alternaria solani).
Shoemaker, P.B. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1981. v. 36. p. 81. (NAL Call No.: 464.9 AM31R).

0846

Fungicides for tomato early blight, 1981 (Tomato (Lycopersicon esculentum 'Flora-Dade'), early blight; Alternaria solani).
Shoemaker, P.B. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 88. (NAL Call No.: 464.9 AM31R).

0847

Fungicides, resistance and spray timing for tomato early blight, 1979 (Tomato (Lycopersicon esculentum), early blight; Alternaria solani).
Shoemaker, P.B. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 95-96. (NAL Call No.: 464.9 AM31R).

0848

Fungigation for control of buckeye rot of tomato, 1983.
FNETD. Potter, H.S. Crawford, R.A. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1985. v. 40. p. 89. (NAL Call No.: DNAL 464.9 AM31R).

0849

Fungigation for control of early blight and anthracnose of tomato, 1984.
FNETD. Reese, L.E. Potter, H.S.; Crawford, R.A. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1985. v. 40. p. 89-90. (NAL Call No.: DNAL 464.9 AM31R).

0850

Fungigation for control of early blight, Septoria leaf spot, bacterial leaf spot and anthracnose of tomato, 1983.
FNETD. Potter, H.S. Crawford, R.A. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1985. v. 40. p. 88. (NAL Call No.: DNAL 464.9 AM31R).

0851

Fusarium crown and root rot of tomato in greenhouse rock wool systems: sources of inoculum and disease management with benomyl.
PLDIDE. Mihuta-Grimm, L. Erb, W.A.; Rowe, R.C. St. Paul, Minn. : American Phytopathological Society. Plant disease. Dec 1990. v. 74 (12). p. 996-1002. ill. Includes references. (NAL Call No.: DNAL 1.9 P69P).

0852

Genetic control of pathotoxin-induced stress in plants.
Gilchrist, D. McFarland, B.; Siler, D.; Clouse, S.; Martensen, A. New York : Alan R. Liss. UCLA symposia on molecular and cellular biology. Paper presented at the "Symposium on Molecular and Cellular Biology of Plant Stress," April 15-21, 1984, Keystone, Colorado. 1985. v. 22. p. 367-380. Includes references. (NAL Call No.: DNAL QH506.U34).

0853

Identification of several pathogenesis-related proteins in tomato leaves inoculated with Cladosporium fulvum (syn. Fulvia fulva) as 1,3-beta-glucanases and chitinases.
PLPHA. Joosten, M.H.A.J. Wit, P.J.G.M. de. Rockville, Md. : American Society of Plant Physiologists. Inoculation of tomato (Lycopersicon esculentum) leaves with Cladosporium fulvum (Cooke) (syn. Fulvia fulva Cooke Cif) results in a marked accumulation of several pathogenesis-related (PR) proteins in the apoplast. Two predominant PR proteins were purified from apoplastic fluid by ion exchange chromatography followed by chromatofocusing. One protein (molecular mass Mr 35 kilodaltons kD isoelectric point L approximately 6.4) showed 1,3-beta glucanase activity, while the other one (Mr26 kD, pl approximately 6.1) showed chitinase activity.

Identification of the products that were released upon incubation of the purified enzymes with laminarin or regenerated chitin revealed that both enzymes showed endo-activity. Using antisera raised against these purified enzymes from tomato and against chitinases and 1,3-beta-glucanase isolated from other plant species, one additional 1,3-beta-glucanase (Mr33 kD) and three additional chitinases (Mr 27, 30, and 32 kD) could be detected in apoplastic fluids or homogenates of tomato leaves inoculated with C. fulvum. Upon inoculation with C. fulvum, chitinase and 1,3-beta-glucanase activity in apoplastic fluids increased more rapidly in incompatible interactions than in compatible ones. The role of these hydrolytic enzymes, potentially capable of degrading hyphal walls of C. fulvum, is discussed in relation to active plant defense. Plant physiology. 1ar 1989. v. 89 (3). p. 945-951. ill. Includes references. (NAL Call No.: DNAL 450 P692).

0854

Immunocytochemical localization of hydroxyproline-rich glycoproteins in tomato root cells infected by a Fusarium oxysporum f. sp. radicis-lycopersici: study of a compatible interaction.
PHYTA. Benhamou, N. Mazau, D.; Esquerre-Tugaye, M.T. St. Paul, Minn. : American Phytopathological Society. The accumulation of hydroxyproline-rich glycoproteins (HRGPs) in cell walls of dicotyledonous plants has been correlated with a general defense mechanism against pathogenic attack. An antiserum raised against purified melon HRGPs was found to cross-react specifically with HRGPs from tomato. This antiserum was used to study, by immunogold cytochemistry, the subcellular localization of these glycoproteins in tomato root tissues infected by Fusarium oxysporum f. sp. radicis-lycopersici. HRGPs were found to be present in low amounts in healthy plant cell walls and were not detected in cultured F. o. radicis-lycopersici. Cell walls of infected tomato root tissues, especially those harvested between 96 and 120 hr after inoculation, were markedly enriched in HRGPs. Accumulation of these glycoproteins appeared to be initiated after contact between the pathogen and the plant cell wall and to occur as a result of tissue damage. Although HRGPs were detected in wall appositions formed in the cortical area in response to infection, their restricted occurrence in walls of invaded cells showing signs of pronounced alteration suggests that accumulation of HRGPs in susceptible tomato plants is a late biochemical event. This supports the concept that early enhancement of HRGPs is a prerequisite to their efficiency in the protection of plants. Phytopathology. Feb 1990. v. 80 (2). p. 163-173. ill. Includes references. (NAL Call No.: DNAL 464.8 P56).

0855

Implication of pectic components in cell surface interactions between tomato root cells and Fusarium oxysporum f. sp. radicis-lycopersici.
PLPHA. Benhamou, N. Chamberland, H.; Pauze, F.J. Rockville, Md. : American Society of Plant Physiologists. Aplysia gonad lectin, a polygalacturonic acid-binding lectin isolated from the sea mollusc Aplysia depilans, was complexed to colloidal gold and used for localizing polygalacturonic-acid-containing molecules in tomato root tissues infected with Fusarium oxysporum f. sp. radicis-lycopersici (FORL). Colonization of host tissues by FORL was associated with striking wall modifications including disruption and even loss of middle lamellae. According to the labeling pattern observed in host wall areas adjacent to fungal penetration channels, it is likely that FORL pectolytic enzymes act through localized wall degradation. The release of polygalacturonic acid-rich wall fragments and the accumulation of polygalacturonic acid-containing molecules in some altered phloem cells were frequently observed and considered to be specific host reactions to fungal attack. The heavy deposition of such molecules at strategic sites such as wall oppositions and intercellular spaces provides support to their implication in the plant defense system. The possible interrelation between polygalacturonic acid-containing molecules and other polymers such as lignin and phenolic compounds remains to be investigated further. The role of these molecules in host-pathogen interactions is discussed in relation to plant defense. Plant physiology. Apr 1990. v. 92 (4). p. 995-1003. ill. Includes references. (NAL Call No.: DNAL 450 P692).

0856

Improved seedling performance by integration of biological control agents at favorable pH levels with solid matrix priming.
PHYTAJ. Harman, G.E. Taylor, A.G. St. Paul, Minn. : American Phytopathological Society. Phytopathology. May 1988. v. 78 (5). p. 520-525. ill. Includes references. (NAL Call No.: DNAL 464.8 P56).

0857

Influence of frequency and duration of furrow irrigation on the development of Phytophthora root rot and yield in processing tomatoes.
PHYTAJ. Ristaino, J.B. Duniway, J.M.; Marois, J.J. St. Paul, Minn. : American Phytopathological Society. Processing tomatoes grown in field plots with soil either infested or uninfested with Phytophthora parasitica were furrow irrigated for 4-8 hr every 14 days (normal irrigation), for 4-8 hr every 28 days (less frequent irrigation), or with alternating 4-8 hr and 24-hr irrigations every 14 days (prolonged irrigation). Disease developed more rapidly and symptom severity was significantly greater on shoots and roots of plants in

infested soil that received prolonged irrigations compared with plants that were irrigated less frequently. Midday leaf water potential was reduced significantly as symptom severity increased and, by 90 days after planting, was correlated negatively with fruit yield at harvest (122 days). Disease significantly reduced fruit yield by 68 or 74%, 34 or 60%, and 20 or 43% as compared with uninoculated controls in prolonged, normal, or less frequent irrigation treatments in 1985 or 1986, respectively. Populations of P. parasitica in soil increased from 6 to 17 colony-forming units per gram (cfu/g) of soil infestation to 67-121 cfu/g of soil at harvest. Results clearly show that variations in the frequency and duration of furrow irrigation can have large effects on the development of Phytophthora root rot and yield loss to root rot in processing tomatoes. Phytopathology. Dec 1988. v. 78 (12,pt.2). p. 1701-1706. Includes references. (NAL Call No.: DNAL 464.8 P56).

0858

Influence of temperature, pH, osmotic potential, fungicide sensitivity on germination of conidia and growth from sclerotia of Colletotrichum coccodes in vitro.
PHYTAJ. Dillard, H.R. St. Paul, Minn. : American Phytopathological Society. Germination of conidia of Colletotrichum coccodes was greatest at 22 C after 24 hr. Conidia did not germinate at 7 C after 24 hr and less than 70% of the conidia germinated at 10 or 31 C. Growth rates of cultures started with air-dried sclerotia were greatest at temperatures from 25 to 31 C. Germination of conidia and growth from sclerotia were optimum at pH 6. Water agar was osmotically adjusted using either KCl, NaCl, CaCl2, or sucrose. Maximum germination of conidia and growth from sclerotia occurred at the highest osmotic potentials (-5 to -10 bars). Little or no germination of conidia occurred at -45 bars except when CaCl2 was used to adjust the osmotic potential of the medium. Radial growth from sclerotia was less when KClor NaCl amendments were used than when CaC12 or sucrose were used. Sensitivity of conidia and sclerotia to captafol, chlorothalonil, anilazine, mancozeb, and copper hydroxide were determined in vitro. Conidia were most sensitive to captafol, which significantly reduced their germination and germ tube elongation at concentrations of 0.01, 0.1, and 1 microgram a.i./ml. Sclerotia were also most sensitive to captafol, which significantly reduced growth at concentrations of 1, 10, and 100 micrograms a.i./ml. Conidia and sclerotia were sensitive to chlorothalonil at the two highest concentrations tested (0.1, 1 microgram a.i./ml and 10, 100 micrograms a.i./ml, respectively). Phytopathology. Oct 1988. v. 78 (10). p. 1357-1361. Includes references. (NAL Call No.: DNAL 464.8 P56).

0859

Inheritance of collar rot resistance in the tomato breeding lines C1943 and NC EBR-2.
PHYTA. Maiero, M. Ng, T.J.; Barksdale, T.H. St. Paul, Minn. : American Phytopathological Society. Collar rot is a tomato seedling disease caused by the fungus Alternaria solani. Resistant and susceptible parents, F1, F2, and backcross generations were evaluated for collar rot resistance in a greenhouse. Genetic analyses included midparent-hybrid comparisons, diallel analysis, and generation mean analysis. The genotypes C1943 and NC EBR-2 were most resistant to collar rot. Additive and dominant effects were important in controlling the trait, and collar rot resistance was incompletely recessive to susceptibility. Phytopathology. Dec 1990. v. 80 (12). p. 1365-1368. Includes references. (NAL Call No.: DNAL 464.8 P56).

0860

Insects and diseases damaging tomato fruits in the coastal plain of North Carolina (Heliothis zea, Leptinotarsa decemlineata, Colletotrichum spp., Alternaria spp., Sclerotium rolfsii, Septoria lycopersici).
Kennedy, G.G. Romanow, L.R.; Jenkins, S.F.; Sanders, D.C. College Park, Md. : Entomological Society of America. Journal of economic entomology. Feb 1983. v. 76 (1). p. 168-173. Includes references. (NAL Call No.: 421 J822).

0861

Integrated pest management for Florida tomatoes.
PLDRA. Waddill, V.H. Schuster, D.J.; Sonoda, R.M. St. Paul, Minn. : American Phytopathological Society. Plant disease. Feb 1986. v. 70 (2). p. 96-102. ill., maps. Includes 31 references. (NAL Call No.: DNAL 1.9 P69P).

0862

Involvement of ethylene in herbicide-induced resistance to Fusarium oxysporum f. sp. melonis.
PHYTAJ. Cohen, R. Riov, J.; Lisker, N.; Katan, J. St. Paul, Minn. : American Phytopathological Society. Phytopathology. Dec 1986. v. 76 (12). p. 1281-1285. Includes 14 references. (NAL Call No.: DNAL 464.8 P56).

0863

Isolation and characterization of an elicitor of necrosis isolated from intercellular fluids of compatible interactions of Cladosporium fulvum (Syn. Fulvia fulva) and tomato.
PLPHA. Wit, P.J.G.M. de. Hofman, A.E.; Velthuis, G.C.M.; Kuc, J.A. Rockville, Md. : American Society of Plant Physiologists. Plant

physiology. Mar 1985. v. 77 (3). p. 642-647. ill. Includes 31 references. (NAL Call No.: DNAL 450 P692).

0864

Late blight of potato and tomato (Phytophthora infestans, control).
Davidson, R.M. Jr. Easton, G.D. Pullman, Wash., The Service. Extension Bulletin - Washington State University, Cooperative Extension Service. Oct 1981. Previously published as EM4261. Oct 1981. (0958). 3 p. ill. (NAL Call No.: 275.29 W27P).

0865

Leaf spot and fruit rot control of tomatoes.
Baldwin, R.E. Virginia Beach, Va. : Virginia Polytechnic Inst. and State University Cooperative Ext. Service. The Vegetable growers news. May/June 1984. v. 38 (6). p. 3. (NAL Call No.: 275.28 V52).

0866

Levels of tomato anthracnose (Colletrotrichum coccodes) resistance measured by reduction of fungicide use.
Barksdale, T.H. Stoner, A.K. St. Paul, Minn., American Phytopathological Society. Plant disease. Jan 1981. v. 65 (1). p. 71-72. ill. 12 ref. (NAL Call No.: 1.9 P69P).

0867

Limited application sprays for control of early blight and Septoria leaf spot of tomato, 1979 (Tomato (Lycopersicon esculentum 'Campbell 1327'), early blight; Alternaria solani, Septoria leaf spot; Septoria lycopersici).
Lewis, G.D. Johnston, S.A. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 93. (NAL Call No.: 464.9 AM31R).

0868

Management of Fusarium wilt, Fusarium crown rot, Verticillium wilt (race 2), southern blight, and root-knot of tomato on fine sandy soils.
Jones, J.P. Overman, A.J. s.l. : The Society. Proceedings of the ... annual meeting of the Florida State Horticulture Society. 1986. v. 98. p. 229-231. Includes references. (NAL Call No.: DNAL SB319.2.F6F56).

0869

Metabiosis and pH on moldy fresh tomatoes (Fungal pathogens).
Mundt, J.O. Norman, J.M. Ames, Iowa, International Association of Milk, Food, and Evironmental Sanitarians. Journal of food protection. July 1982. v. 45 (9). p. 829-832. 19 ref. (NAL Call No.: 44.8 J824).

0870

Mixtures of copper and maneb or mancozeb for control of bacterial spot of tomato and their compatibility for control of fungus diseases (Phytophthora infestans, Stemphylium solani, Xanthomonas campestris pv. vesicatoria, Florida).
Conover, R.A. Gerhold, N.R. S.l., The Society. Proceedings of the ... annual meeting of the Florida State Horticultural Society. 1981 (pub. 1982). v. 94. p. 154-156. Includes 4 ref. (NAL Call No.: 81 F66).

0871

Mycotoxin production by Alternaria species grown on apples, tomatoes, and blueberries (Storage diseases, food contamination).
Stinson, E.E. AR-ERRC. Bills, D.D.; Osman, S.F.; Siciliano, J.; Ceponis, M.J.; Heisler, E.G. Washington, D.C., American Chemical Society. Journal of agricultural and food chemistry. Sept/Oct 1980. v. 28 (5). p. 960-963. 25 ref. (NAL Call No.: 381 J8223).

0872

Mycotoxin production in whole tomatoes, apples, oranges and lemons (Alternaria molds).
Stinson, E.E. Osman, S.F.; Heisler, E.G.; Siciliano, J.; Bills, D.D. Washington, D.C., American Chemical Society. Journal of agricultural and food chemistry. July/Aug 1981. v. 29 (4). p. 790-792. 8 ref. (NAL Call No.: 381 J8223).

0873

A novel enolic beta-ketoaldehyde phytotoxin produced by Stemphylium botryosum f. sp. lycopersici. Partial chemical and biological characterization (Causal agent of leaf spot and foliage blight disease of tomato, Fungi).
Barash, I. Pupkin, G.; Netzer, D.; Kashman, Y. Rockville, Md., American Society of Plant Physiologists. Plant physiology. Jan 1982. v. 69 (1). p. 23-27. ill. 14 ref. (NAL Call No.: 450 P692).

0874

Path coefficient analysis of the effect of rainfall variables on the epidemiology of Phytophthora blight of pepper caused by Phytophthora capsici.
PHYTA. Bowers, J.H. Sonoda, R.M.; Mitchell, D.J. St. Paul, Minn. : American Phytopathological Society. Field plots were established in Delray Beach, FL, in the spring and fall of 1984, the spring of 1985, and the fall of 1986 to quantify disease progress and the effect of rainfall and temperature variables on Phytophthora blight of pepper caused by Phytophthora capsici. From point sources of inoculum (diseased plants), the incidence of disease was observed to spread outward over time from the central, primary foci. Disease progress was observed to be influenced by rainfall and the movement of water over the soil and plastic mulch. Path coefficient analysis was conducted to determine which rainfall variables had relatively large, direct, or indirect effects on the incidence and the rate of disease progress without the confounding influences of multicollinearity. The cumulative amount of rainfall had the largest, absolute direct effect on disease progress and was a large component of the indirect effects of the other variables in three of the trials. A cumulative rain intensity index had the largest, absolute direct effect in one trial. The cumulative number of days with rainfall, the cumulative daily average temperature, and chronological time had far lesser effects, indicating their lack of influence on disease progress. The amount of rainfall also had the largest, direct effect on the rate of disease progress when calculated between disease assessment dates and was the largest component of the indirect effects of the other variables in all four trials. The other rainfall and temperature variables had relatively less influence on the rate of disease progress. The average rates of symptom expression were 0.14, 0.14, 0.20, and 0.27 per unit per centimeter of rainfall for the four trials. Phytopathology. Dec 1990. v. 80 (12). p. 1439-1446. Includes references. (NAL Call No.: DNAL 464.8 P56).

0875

Pest control in commercial tomato production (Weeds, fungus diseases, insects).
Binning, L.K. Wyman, J.A.; Stevenson, W.R. Madison, Wis., The Programs. Publication - Cooperative Extension Programs, University of Wisconsin Extension. Apr 1981. (A2351). 3 p. (NAL Call No.: S544.3.W6W53).

0876

Pesticide applicator for tomatoes (to control insects and fungal diseases).
Tompkins, F.D. TN. Hart, W.E.; Willingham, J.E.; Coffey, D.L. Knoxville, The Station. Tennessee farm and home science - Tennessee Agricultural Experiment Station. Jan/Mar 1980. Jan/Mar 1980. (113). p. 18-20. ill. 4 ref. (NAL Call No.: 100 T25F).

0877

Phytophthora root rot and irrigation schedule influence growth and phenology of processing tomatoes.
JOSHB. Ristaino, J.B. Duniway, J.M.; Marois, J.J. Alexandria, Va. : The Society. Processing tomatoes (Lycopersicon esculentum Mill.) grown in field plots with soil infested or not infested with Phytophthora parasitica Dastur. were furrow-irrigated for 4 to 8 hr every 14 days (normal) or 28 days (less frequent) or with alternating 4- to 8-hr and 24-hr irrigations every 14 days (prolonged). Disease developed more rapidly and symptom severity was significantly greater on shoots and roots of plants that received prolonged irrigations. Disease symptoms on roots progressed more rapidly and were observed earlier than those on shoots in plants given prolonged or normal irrigation. Severe disease during early vegetative and reproductive growth caused significant reductions in total plant, leaf, and fruit dry matter and in the numbers of flowers and fruit in plants receiving either prolonged or normal irrigation. Diseased plants given prolonged irrigation also partitioned less total dry matter into leaves and fruit and more into stems than noninoculated plants. Less frequent irrigation of infested plots caused a delay in disease onset and reduced the impact of disease on numbers of flowers, fruit, and dry matter accumulation. Phytophthora-induced water stress during critical stages of crop development apparently can have major impacts on plant growth, phenology, and yield in processing tomato. Journal of the American Society for Horticultural Science. July 1989. v. 114 (4). p. 556-561. Includes references. (NAL Call No.: DNAL 81 SO12).

0878

Phytotoxicity of fungicide combinations incorporated into peat-lite mix, 1980 (Celosia (Celosia cristata (Plumosa sp.) 'Fairy Fountains'), eggplant (Solanum melongena var. esculentum 'Special Hibush'), Impatiens (Impatiens wallerana 'Extra Dwarf White Baby'), tomato (Lycopersicon esculentum 'Fireball'), Zinnia (Zinnia elegans 'Cupid'), damping-off; Pythium, Rhizoctonia, etc.).
Daughtrey, M.L. Wells, S.L. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1981. v. 36. p. 124. (NAL Call No.: 464.9 AM31R).

0879

Plant pathology fact sheet: diseases of field grown tomatoes.
Gay, J.D. Athens, Ga. : The Service. Leaflet - Cooperative Extension Service, University of Georgia. May 1990. (218,rev.). 6 p. ill. (NAL Call No.: DNAL 275.29 G29L).

0880

Plant pathology fact sheet: pepper diseases.
Gay, J.D. Athens, Ga. : The Service. Leaflet - Cooperative Extension Service, University of Georgia. May 1990. (77,rev.). 4 p. ill. (NAL Call No.: DNAL 275.29 G29L).

0881

The possible role of competition between Trichoderma harzianum and Fusarium oxysporum on rhizosphere colonization.
PHYTAJ. Sivan, A. Chet, I. St. Paul, Minn. : American Phytopathological Society. Soil was enriched with chlamydospores of Fusarium oxysporum f. sp. vasinfectum and F. oxysporum f. sp. melonis and amended with increasing concentrations of glucose and asparagine. Maximal germination of chlamydospores was obtained in soil amended with 0.4 mg of glucose and 0.08 mg of asparagine per gram of soil. Addition of conidia of the biocontrol agent Trichoderma harzianum (T-35) significantly (P = 0.05) reduced the chlamydospore germination rate of both Fusaria. However, in soils amended with concentrations higher than 0.3 and 0.06 mg/g of soil of glucose and asparagine, respectively, the inhibition was nullified. Chlamydospore germination of F.o. melonis and F.o. vasinfectum in melon and cotton rhizosphere soil were significantly inhibited after soil or seed application with T-35. As in the case of the glucose and asparagine, addition of an excess of seedling exudates increased the germination rate and eliminated the inhibition. Moreover, a continuous application of germinating cotton seed exudates to a soil infested with F.O. vasinfectum planted with cotton and treated with T-35 significantly reduced the disease control capability of the antagonist. A seed treatment with T-35 in a constantly humid soil resulted in high population densities of the antagonist on the developing rhizosphere. Plants grown from seeds treated with T-35 had roots with lower levels of Fusarium spp. in their rhizosphere than roots from plants from untreated seeds. The greatest density and the largest reduction in levels of Fusarium were detected on the lower 4 cm of the roots. Numbers of Fusarium in the rhizosphere were inversely proportional to the number of conidia of T-35 applied to soil. On the other hand, as the concentration of the pathogen in soil increased, T-35 counts on root segments decreased. Trichoderma had little effect on the survival of Fusarium spp. in nonrhizosphere soil. Inhibition of germination may therefore have resulted from competition. Phytopathology. Feb 1989. v. 79 (2). p. 198-203. Includes references. (NAL Call No.: DNAL 464.8 P56).

0882

Possible role of competition for nutrients in biocontrol of Pythium damping-off by bacteria.
PHYTAJ. Elad, Y. Chet, I. St. Paul, Minn. : American Phytopathological Society. Phytopathology. Feb 1987. v. 77 (2). 190-195. Includes references. (NAL Call No.: DNAL 464.8 P56).

0883

Postharvest studies with mechanically harvested fresh-market tomatoes.
Fuchs, Y. Barkai-Golan, R.; Aharoni, N. St. Joseph, Mich. : American Society of Agricultural Engineers, c1984. Fruit, nut, and vegetable harvesting mechanization : proceedings, International Symposium on Fruit ... Mechanization, Oct 5-12, 1983, Volcani Center, Bet Dagan, Israel / Institute of Agricultural Engi. p. 408-411. Includes 7 references. (NAL Call No.: DNAL SB360.3.I5 1983).

0884

Powdery mildew of tomato: the effect of planting date and triadimefon on disease onset, progress, incidence, and severity.
PHYTAJ. Correll, J.C. Gordon, T.R.; Elliott, V.J. St. Paul, Minn. : American Phytopathological Society. Phytopathology. May 1988. v. 78 (5). p. 512-519. Includes references. (NAL Call No.: DNAL 464.8 P56).

0885

Prompt detection of anthracnose and early blight is critical for tomatoes.
Dillard, H. Batavia, N.Y. : Agricultural Div. of Coop Extension, Four Western Plain Counties, N.Y. State. Ag impact. June 1988. v. 15 (6). p. 6-7. (NAL Call No.: DNAL S544.3.N7A45).

0886

Protection of fluid-drilled tomato seedlings against damping-off by fungicide incorporation in a gel carrier.
HJHSA. Giammichele, L.A. Pill, W.G. Alexandria, Va. : American Society for Horticultural Science. HortScience. Dec 1984. v. 19 (6). p. 877-879. Includes 9 references. (NAL Call No.: DNAL SB1.H6).

0887

Purple reign.
Pleasant, B. Emmaus, Pa. : Rodale Press, Inc. Organic gardening. July/Aug 1989. v. 36 (7). p. 47-50. ill. (NAL Call No.: DNAL S605.5.074).

0888

Quantification of phosphonate and ethyl phosphonate in tobacco and tomato tissues and significance for the mode of action of two phosphonate fungicides.
PHYTAJ. Fenn, M.E. Coffey, M.D. St. Paul, Minn. : American Phytopathological Society.
Quantification of ethyl phosphonate and phosphonate (HPO3(2-), phosphite) in plant tissues treated with the phosphonate fungicides fosetyl-Al and potassium phosphonate was achieved using high performance ion chromatography. Phosphonate also was quantified by scintillation counting using tritium-labeled HPO3(2-). Lesion length in HPO3(2-)-treated tomato leaflets inoculated with Phytophthora capsici and containing 8.9 mM phosphate and 78-110 micrograms/g fresh weight (fr. wt.) of HPO3(2-) was reduced by 61%. Tomato leaflets treated with 160 micrograms/ml of fosetyl-Al for 48 hr contained 88 micrograms/g fr. wt. of HPO3(2-) but only 3 micrograms/g fr. wt. of ethyl phosphonate. Because the in vitro EC50 value for P. capsici with me dia containing 5 mM potassium phosphate was 77 micrograms/ml of H3PO3(2-), these combined results support a direct mode of action for HPO3(2-). Likewise with P. parasitica var. nicotianae on tobacco, the HPO3(2-) content of seedlings treated with 390 micrograms/ml of HPO3(2-) or 1,000 micrograms/ml of fosetyl-Al (279 micrograms/g and 308 micrograms/g, respectively) was sufficient to account for disease control through a direct mode of action. Using chemical mutagenesis strains of P. capsici and P. parasitica var. nicotianae were obtained which grew on 0.5% cornmeal agar containing 878 micrograms/ml of HPO3(2-). One of the mutant strains of P. parasitica var. nicotianae killed tobacco seedlings containing 484 micrograms/g fr. wt. of HPO3(2-), whereas plants inoculated with the parental wild-type isolate were symptomless in the presence of 215 micrograms/g fr. wt. of HPO3(2-). Uptake of HPO3(2-) by P. parasitica var. nicotianae was inhibited 77-80% over 4 hr when alpha-aminooxyacetic acid (AOA) was added to culture media. In the presence of AOA in vivo, 390 micrograms/ml of HPO3(2-) protected tobacco plants from infection with P. parasitica var. nicotianae, whereas 195 micrograms/ml was ineffective. These data add further support to the conce. Phytopathology. Jan 1989. v. 79 (1). p. 76-82. Includes references. (NAL Call No.: DNAL 464.8 P56).

0889

Relation between resistance of tomato fruit to infiltration by Erwinia carotovora subsp. carotovora and bacterial soft rot.
PLDIDE. Bartz, J.A. St. Paul, Minn. : American Phytopathological Society. Plant disease. Feb 1991. v. 75 (2). p. 152-155. Includes references. (NAL Call No.: DNAL 1.9 P69P).

0890

Rhizosphere competence of Trichoderma harzianum.
PHYTAJ. Ahmad, J.S. Baker, R. St. Paul, Minn. : American Phytopathological Society. Phytopathology. Feb 1987. v. 77 (2). p. 182-189. ill. Includes references. (NAL Call No.: DNAL 464.8 P56).

0891

Ridomil and metalaxyl/chlorothalonil combinations for control of fruit rot and early blight on single-harvest processing tomatoes, 1985.
FNETD. MacNab, A.A. Pennypacker, S.P. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1986. v. 41. p. 69. (NAL Call No.: DNAL 464.9 AM31R).

0892

Screening fungicides for seed and seedling disease control in plug-mix and fluid-drilling plantings.
Sonoda, R.M. Phatak, S.C. St. Paul, Minn. : APS Press, c1986. Methods for evaluating pesticides for control of plant pathogens / edited by Kenneth D. Hickey ; prepared jointly by the American Phytopathological Society and the Society of Nematologists. p. 258-260. Includes references. (NAL Call No.: DNAL SB960.M47 1986).

0893

Seedling diseases of vegetables in conservation tillage with soil fugicides and fluid drilling.
PLDIDE. Sumner, D.R. Ghate, S.R.; Phatak, S.C. St. Paul, Minn. : American Phytopathological Society. Plant disease. Apr 1988. v. 72 (4). p. 317-320. Includes references. (NAL Call No.: DNAL 1.9 P69P).

0894

Severe spotting of fresh market tomato fruit incited by Corynespora cassiicola after storm-related injury.
PLDIDE. Volin, R.B. Pohronezny, K.; Simone, G.W. St. Paul, Minn. : American Phytopathological Society. Plant disease. Dec 1989. v. 73 (12). p. 1018-1019. ill. Includes references. (NAL Call No.: DNAL 1.9 P69P).

0895

Soil fumigants for control of nematodes, Fusarium wilt, and Fusarium crown rot on tomato.
Overman, A.J. Jones, J.P. s.l. : The Society. Proceedings of the ... annual meeting of the Florida State Horticulture Society. June 1985. v. 97. p. 194-197. Includes references. (NAL Call No.: DNAL SB319.2.F6F56).

0896

Soil fumigants for tomato production on Rockdale soils.
McSorley, R. McMillan, R.T. Jr.; Parrado, J.L. s.l. : The Society. Proceedings of the ... annual meeting of the Florida State Horticulture Society. 1986. v. 98. p. 232-237. Includes references. (NAL Call No.: DNAL SB319.2.F6F56).

0897

Soil solarization, reaction, and fumigtion effects on double-cropped tomato under full-bed mulch.
Overman, A.J. Jones, J.P. s.l. : The Society. Proceedings of the ... annual meeting of the Florida State Horticulture Society. 1986 (pub. 1987). v. 99. p. 315-318. Includes references. (NAL Call No.: DNAL SB319.2.F6F56).

0898

Solarizing soil planted with cherry tomatoes vs. solarizing fallow ground for control of Verticillium wilt.
PLDIDE. Morgan, D.P. Liebman, J.A.; Epstein, L.; Jimenez, M.J. St. Paul, Minn. : American Phytopathological Society. Plant disease. Feb 1991. v. 75 (2). p. 148-151. Includes references. (NAL Call No.: DNAL 1.9 P69P).

0899

Spectral properties of mold and defects of processing tomatoes.
Moini, S. O'Brien, M.; Chen, P. St. Joseph, Mich., The Society. Transactions of the ASAE - American Society of Agricultural Engineers. July/Aug 1980. v. 23 (4). p. 1062-1064. ill. 4 ref. (NAL Call No.: 290.9 AM32T).

0900

Strategies for controlling fusarium crown and root rot in greenhouse tomatoes (Fusarium oxysporum).
Rowe, R.C. Farley, J.D. St. Paul, Minn., American Phytopathological Society. Plant disease. Feb 1981. v. 65 (2). p. 107-112. ill. 20 ref. (NAL Call No.: 1.9 P69P).

0901

Suppression of verticillium wilt of tomato by difluoromethylornithine, a suicidal inhibitor of polyamine biosynthesis.
PLDRA. Mussell, H. Osmeloski, J.; Wettlaufer, S.H.; Weinstein, L. St. Paul, Minn. : American Phytopathological Society. Plant disease. Apr 1987. v. 71 (4). p. 313-316. Includes references. (NAL Call No.: DNAL 1.9 P69P).

0902

Systemic translocation of 14C (carbon isotope)-labeled metalaxyl (fungicide) in tomato, avocado, and Persea indica.
Zaki, A.I. Zentmyer, G.A.; LeBaron, H.M. Laramie, The Station. Science monograph - University of Wyoming, Agricultural Experiment Station. May 1981. v. 71 (5). p. 509-514. ill. 13 ref. (NAL Call No.: S131.E2).

0903

Target spot of tomato: epidemiology and control.
Jones, J.P. Jones, J.B. s.l. : The Society. Proceedings of the ... annual meeting of the Florida State Horticulture Society. June 1985. v. 97. 216-218. Includes references. (NAL Call No.: DNAL SB319.2.F6F56).

0904

A technique to evaluate tomatoes for resistance to phytophthora root rot in the greenhouse.
PLDRA. Bolkan, H.A. St. Paul, Minn. : American Phytopathological Society. Plant disease. Aug 1985. v. 69 (8). p. 708-709. Includes 9 references. (NAL Call No.: DNAL 1.9 P69P).

0905

Timing pesticide applications for control of Heliothis zea (Boddie) (Lepidoptera: Noctuidae), Alternaria solani (Ell. and G. Martin) Sor., and Phytophthora infestans (Mont.) De Bary, on Tomatoes in western North Carolina.
Walgenbach, J.F. Shoemaker, P.B.; Sorenson, K.A. Clemson, S.C. : South Carolina Entomological Society. Journal of agricultural entomology. July 1989. v. 6 (3). p. 159-168. Includes references. (NAL Call No.: DNAL SB599.J69).

0906

Tomato bacterial speck and early blight control with fungicides, 1980 (Tomato (Lycopersicon esculentum 'VF134'), bacterial speck; Pesuodomonas tomato, early blight; Alternaria solani).
MacNab, A.A. (s.l.), The Society. Fungicide and

nematicide tests; results - American Phytopathological Society. 1981. v. 36. p. 78-79. (NAL Call No.: 464.9 AM31R).

0907

Tomato bacterial speck and early blight control with fungicides, 1982 (Pseudomonas syringae pv. tomato, Alternaria solani, Lycoersicon esculentum).
MacNab, A.A.FNETD. (s.l.) : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1983. v. 38. p. 110. (NAL Call No.: 464.9 AM31R).

0908

Tomato bacterial speck and early blight control with three rates of fixed copper tank-mixed with Mancozeb, 1981 (Tomato (Lycopersicon esculentum 'VF134'), bacterial speck; Pseudomonas syringae pv tomato, early blight; Alternaria solani).
MacNab, A.A. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 85. (NAL Call No.: 464.9 AM31R).

0909

Tomato bacterial speck control with fungicides, 1979 (Tomato (Lycopersicon esculentum 'Merit'), bacterial speck; Pseudomonas tomato, early blight; Alternaria solani).
MacNab, A.A. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 93. (NAL Call No.: 464.9 AM31R).

0910

Tomato early blight resistance in a breeding line derived from Lycopersicon hirsutum PI 126445.
PLDIDE. Nash, A.F. Gardner, R.G. St. Paul, Minn. : American Phytopathological Society. Plant disease. Mar 1988. v. 72 (3). p. 206-209. Includes references. (NAL Call No.: DNAL 1.9 P69P).

0911

Tomato fungicide testing, 1979 (Tomato (Lycopersicon esculentum 'V.F. Gardner', 'Roadside Red'), early blight; Alternaria solani, anthracnose; Colletotrichum phomoides).
Abdel-Rahman, M. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 90-91. (NAL Call No.: 464.9 AM31R).

0912

Tomato (Lycopersicon) disorder: verticillium and fusarium wilt urban phytonarian series.
Stevenson, Walter R. Heimann, Mary Francis.& Urban phytonarian series. 1981. This publication discusses the symptoms, effects, cause and control of Verticillium and Fusarium wilts in tomatoes. Document available from: Agricultural Bulletin Bldg., 1535 Observatory Drive, University of Wisconsin, Madison, Wisconsin 53706. 1 sheet : ill. (NAL Call No.: Not available at NAL.).(NAL Call No.: A2617).

0913

Toxicity of the surfactant Nacconol to four decay-causing fungi of fresh-market tomatoes (Botrytis cinerea, Geotrichum candidum, Phytophthora parasitica, Rhizopus stolonifer, phytotoxicity).
Hoy, M.W. Ogawa, J.M. St. Paul, Minn. : American Phytopathological Society. Plant disease. Aug 1984. v. 68 (8). p. 699-703. ill. Includes 15 references. (NAL Call No.: 1.9 P69P).

0914

Use of row covers and black plastic mulch in control of southern blight on production of bell peppers.
Brown, J.E. Stevens, C.; Osborn, M.C.; Bryce, H.M. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1987. v. 20. p. 46-52. Includes references. (NAL Call No.: DNAL 309.9 N216).

0915

Use of two- and three-way mixtures to prevent buildup of resistance to phenylamide fungicides in Phytophthora and plasmopara.
PHYTAJ. Samoucha, Y. Gisi, U. St. Paul, Minn. : American Phytopathological Society. Phytopathology. Oct 1987. v. 77 (10). p. 1405-1409. Includes references. (NAL Call No.: DNAL 464.8 P56).

0916

Wilt diseases of tomatoes.
Wiebe, Wayne L. Wysong, David S. 1981. This publication has information on symptoms and disease development, and control of Fusarium wilt and Verticullium wilt. Document available from: Dept. of Ag. Communications, Univ. of Nebraska, Lincoln, NB 61801. 1 sheet : ill. (NAL Call No.: G81-569).

0917

2-cyano-N-((ethylamino)carbonyl)-2-(methoxyimino)acetamide, a new fungicide (for the control of late blight of tomato and potato Phytophthora infestans, and grape downy mildew, Plasmopora viticola).
Klopping, H.L. Delp, C.J. Washington, D.C., American Chemical Society. Journal of agricultural and food chemistry. Mar/Apr 1980. v. 28 (2). p. 467-468. ill. 8 ref. (NAL Call No.: 381 J8223).

0918

Aerial application vs. fungigation for control of tomato disease, 1981 (Tomato (Lycopericon esculentum 'C-37'), early blight; Alternaria solani, septoria leaf spot; Septoria lycopersici, bacterial leaf spot; Xanthomonas vesicatoria, anthracnose; Colletotrichum phomoides).
Potter, H.S. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 87. (NAL Call No.: 464.9 AM31R).

0919

Aerial application vs fungigation for control of tomato diseases, 1980 (Tomato (Lycopersicon esculentum 'C-37'), early blight; Alternaria solani, Septoria blight; Septoria lycopersici, bacterial leaf spot; Xanthomonas vesicatoria, bacterial canker; Corynebacterium michiganense, anthracnose; Colletotrichum phomoides, buckeye rot; Phytophthora parasitica).
Potter, H.S. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1981. v. 36. p. 80. (NAL Call No.: 464.9 AM31R).

0920

Airborne dispersal of bacteria in tomato and pepper transplant fields.
PLDIDE. McInnes, T.B. Gitaitis, R.D.; McCarter, S.M.; Phatak, S.C. St. Paul, Minn. : American Phytopathological Society. Plant disease. July 1988. v. 72 (7). p. 575-579. Includes references. (NAL Call No.: DNAL 1.9 P69P).

0921

Bacterial spot--Florida's most serious tomato disease (Bacterium Xanthomonas vesicatoria, suggested control measures).
Cox, R.S. Willoughby, Ohio : Meister Publishing Company. American vegetable grower. Aug 1983. v. 31 (8). p. 19. Includes references. (NAL Call No.: 80 C733).

0922

Bacterial stem rot of greenhouse tomato: etiology, spatial distribuiton, and the effect of high humidity.
PHYTAJ. Dhanvantari. B.N.; Dirks, V.A. St. Paul, Minn. : American Phytopathological Society. Phytopathology. Oct 1987. v. 77 (10). p. 1457-1463. ill. Includes references. (NAL Call No.: DNAL 464.8 P56).

0923

Causes of postharvest losses in a Florida tomato shipment (Pseudomonas marginalis, Pseudomonas aeruginosa, Erwinia carotovora).
Bartz, J.A. St. Paul, Minn., American Phytopathological Society. Plant disease. Oct 1980. v. 64 (10). p. 934-937. 24 ref. (NAL Call No.: 1.9 P69P).

0924

Characterization of pXV10A, a copper resistance plasmid in Xanthomonas campestris pv. vesicatoria.
APMBA. Bender, C.L. Malvick, D.K.; Conway, K.E.; George, S.; Pratt, P. Washington, D.C. : American Society for Microbiology. The efficacy of copper bactericides for control of Xanthomonas campestris pv. vesicatoria in eastern Oklahoma tomato fields was evaluated. Copper bactericides did not provide adequate control, and copper-resistant (Cur) strains of the pathogen were isolated. The Cur genes in these strains were located on a large indigenous plasmid designated pXV10A. The host range of pXV10A was investigated; this plasmid was efficiently transferred into 8 of 11 X. campestris pathovars. However, the transfer of pXV10A to other phytopathogenic genera was not detected. DNA hybridization experiments were performed to characterize the Cur genes on pXV10A. A probe containing subcloned Cur genes from X. campestris pv. vesicatoria E3C5 hybridized to pXV10A; however, a subclone containing Cur genes from P. syringae pv. tomato PT23 failed to hybridize to pXV10A. Further DNA hybridization experiments were performed to compare pXV10A with pXvCu plasmids, a heterogenous group of Cur plasmids present in strains of X. campestris pv. vesicatoria from Florida. These studies indicated that the Cur genes on pXV10A and pXvCu plasmids share nucleotide sequence homology and may have a common origin. Further experiments showed that these plasmids are distinctly different because pXV10A did not contain sequences homologous to IS476, an insertion sequence present on pXvCu plasmids. Applied and environmental microbiology. Jan 1990. v. 56 (1). p. 170-175. ill. Includes references. (NAL Call No.: DNAL 448.3 AP5).

0925

Characterization of three Agrobacterium tumefaciens avirulent mutants with chromosomal mutations that affect induction of vir genes.
JOBAAY. Metts, J. West, J.; Doares, S.H.; Matthysse, A.G. Washington, D.C. : American Society for Microbiology. Three Agrobacterium tumefaciens mutants with chromosomal mutations that affect bacterial virulence were isolated by transposon mutagenesis. Two of the mutants were avirulent on all hosts tested. The third mutant, Ivr-211, was a host range mutant which was avirulent on Bryophyllum diagremontiana, Nicotiana tabacum, N. debneyi, N. glauca, and Daucus carota but was virulent on Zinnia elegans and Lycopersicon esculentum (tomato).

That the mutant phenotype was due to the transposon insertion was determined by cloning the DNA containing the transposon insertion and using the cloned DNA to replace the wild-type DNA in the parent bacterial strain by marker exchange. The transposon insertions in the three mutants mapped at three widely separated locations on the bacterial chromosome. The effects of the mutations on various steps in tumor formation were examined. All three mutants showed no alteration in binding to carrot cells. However, none of the mutants showed any induction of vir genes by acetosyringone under conditions in which the parent strain showed vir gene induction. When the mutant bacteria were examined for changes in surface components, it was found that all three of the mutants showed a similar alteration in lipopolysaccharide (LPS). LPS from the mutants was larger in size and more heavily saccharide substituted than LPS from the parent strain. Two of the mutants showed no detectable alteration in outer membrane and periplasmic space proteins. The third mutant, Ivr-225, was missing a 79-kDa surface peptide. The reason(s) for the failure of vir gene induction in these mutants and its relationship, if any, to the observed alteration in LPS are unknown. Journal of bacteriology. Feb 1991. v. 173 (3). p. 1080-1087. ill. Includes references. (NAL Call No.: DNAL 448.3 J82).

0926

Chemical control of anthracnose bacterial speck and buckeye rot on processing tomatoes, 1985.
FNETD. Riedel, R.M. Shambaugh, T.S. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1986. v. 41. p. 65-66. (NAL Call No.: DNAL 464.9 AM31R).

0927

Chemical control of foliar diseases of peanuts, peppers, and onions as affected by spray nozzle types, nozzle orientations, spray intervals, and adjuvants.
PLDRA. Kucharek, T.A. Cullen, R.E.; Stall, R.E.; Llewellyn, B. St. Paul, Minn. : American Phytopathological Society. Plant disease. June 1986. v. 70 (6). p. 583-586. Includes 15 references. (NAL Call No.: DNAL 1.9 P69P).

0928

A cloned avirulence gene from Pseudomonas solanacearum determines incompatibility on Nicotiana tabacum at the host species level.
JOBAAY. Carney, B.F. Denny, T.P. Washington, D.C. : American Society for Microbiology. A locus in Pseudomonas solanacearum AW1 responsible for the hypersensitive response (HR) on tobacco was cloned by complementation in the tobacco-pathogenic strain P. solanearum NC252. The NC252 HR+ transconjugants lost pathogenicity on tobacco, indicating that the cloned locus could restrict the host range of NC252. Restriction enzyme mapping, transposon mutagenesis, and subcloning showed that, at most, 2.0 kilobases of the cloned DNA was required for NC252 transconjugants to elicit HR on tobacco. Site-directed insertional mutagenesis of the wild-type locus in strain AW1 to create AW1-31 eliminated HR activity on tobacco. However, AW1-31 retained pathogenicity on tomato and eggplant, confirming that this locus contains an avirulence gene, designated avrA. In contrast to the wild type, AW1-31 multiplied to almost the same extent as NC252 after infiltration into tobacco leaves. Nevertheless, AW1-31 did not wilt tobacco when stem inoculated, suggesting that additional factors condition host range. AW1 was HR+ on 27 N. tabacum cultivars, whereas AW1-31 was always HR-, strongly suggesting that avrA is specific at the host species level. Journal of bacteriology. Sept 1990. v. 172 (9). p. 4836-4843. ill. Includes references. (NAL Call No.: DNAL 448.3 J82).

0929

Colonization of tomato plants by two agrocin-producing strains of Agrobacterium tumefaciens.
APMBA. Macrae, S. Thomson, J.A.; Van Staden, J. Washington, D.C. : American Society for Microbiology. For a bacterium to be a successful biocontrol agent against crown gall disease, it must produce an effective agrocin specific for Agrobacterium tumefaciens and be able to colonize host plants efficiently. The colonization abilities of K84 and J73, successful and potential biocontrolling strains, respectively, were compared both in vivo and in vitro. Both strains produced fibrils attaching them to tomato root surfaces and had similar colonization efficiencies up to 14 days after inoculation. However, the ability of J73 to colonize plants for longer periods was significantly less than that of K84. Thus, the presence of fibrils is not sufficient to ensure colonization. No correlation was found between hydrophobicity and colonization. Applied and environmental microbiology. Dec 1988. v. 54 (12). p. 3133-3137. ill. Includes references. (NAL Call No.: DNAL 448.3 AP5).

0930

Construction and use of a nonradioactive DNA hybridization probe for detection of Pseudomonas syringae pv. tomato on tomato plants.
APMBA. Cuppels, D.A. Moore, R.A.; Morris, V.L. Washington, D.C. : American Society for Microbiology. Pseudomonas syringae pv. tomato, the causal agent for bacterial speck of tomato, produces the phytotoxin coronatine. A 5.3-kilobase XhoI fragment from the chromosomal region controlling toxin production was cloned into the plasmid pGB2, and the resulting recombinant plasmid, pTPR1, was tested for its ability to serve as a diagnostic probe for P. syringae pv. tomato. In a survey of 75 plant-associated bacteria, pTPR1 hybridized

exclusively to those strains that produced coronatine. The detection limit for this probe, which was labeled with the Chemiprobe nonradioactive reporter system, was approximately 4 X 10(3) CFU of lesion bacteria. During the 1989 growing season, a total of 258 leaf and fruit lesions from nine tomato fields were screened for P. syringae pv. tomato by using pTPR1 and the culture method of detection. The best agreement between the two methods, 90%, occurred early in the season with samples taken from relatively young (5-week-old) plants. Young plants also had a higher percentage of P. syringae pv. tomato-positive lesions. P. syringae pv. tomato was the only coronatine producer recovered from the nine tomato fields. All 244 P. syringae pv. tomato strains isolated during this study reacted strongly with the probe. The P. syringae pv. tomato population of healthy field tomato leaves was determined by a pTPR1 colony hybridization procedure. Every probe-positive colony that was isolated and characterized was identified as P. syringae pv. tomato. The pTPR1 probe should expedite disease diagnosis and facilitate epidemiological studies of this pathogen. It also should aid in screening transplant seedlings for bacterial speck infestation. Applied and environmental microbiology. June 1990. v. 56 (6). p. 1743-1749. ill. Includes references. (NAL Call No.: DNAL 448.3 AP5).

0931

Control of bacterial spot of tomato in southern Florida (Xanthomonas vesicatoria).
Cox, R.S. St. Paul, Minn., American Phytopathological Society. Plant disease. Sept 1982. v. 66 (9). p. 870. (NAL Call No.: 1.9 P69P).

0932

Control of fungal and bacterial diseases of processing tomatoes with foliar sprays, 1985.
FNETD. Dillard, H.R. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1986. v. 41. p. 64. (NAL Call No.: DNAL 464.9 AM31R).

0933

Copper tolerance and zinc sensitivity of mexican strains of Xanthomonas campestris pv. vesicatoria, causal agent of bacterial spot of pepper.
PLDRA. Adaskaveg, J.E. Hine, R.B. St. Paul, Minn. : American Phytopathological Society. Plant disease. Nov 1985. . v. 69 (11). p. 993-996. Includes 14 references. (NAL Call No.: DNAL 1.9 P69P).

0934

Copper toxicity in tomato plants.
JEVQAA. Rhoads, F.M. Olson, S.M.; Manning, A. Madison, Wis. : American Society of Agronomy. Copper (Cu)-containing fungicides and bactericides are used extensively for disease control on staked tomatoes (Lycopersicon esculentum Mill.) in North Florida. Since Cu moves very little in most soils, the potential for Cu buildup in tomato fields is substantial over a period of continuous tomato culture. The purpose of this research was to determine the Cu levels of soil and plant tissue, which are associated with reduced growth, and the influence of soil acidity on Cu uptake and growth response of tomatoes to soil Cu. Tomato plants were grown for approximately 6 wk in a greenhouse in pots of soil (Typic Paleudult) containing two levels of calcitic lime and six levels of copper hydroxide in a factorial treatment arrangement. Lime levels were 0 and 3.5 g kg-1 in Experiment 1 and 0 and 7.0 g kg-1 in Experiment 2. Copper levels were 0, 175, 350, 700, 1400, and 2800 mg kg-1 in Experiment 1 and 0, 44, 88, 175, 350, and 700 mg kg-1 in Experiment 2. Tissue-Cu concentration was not a conclusive indicator of Cu toxicity in tomatoes. Soil pH and Mehlich 1-extractable Cu provided sufficient information for determining if soil-cu levels were reducing plant growth. Near-maximum Cu concentration in tomato tissue occurred at soil-Cu levels above 104 mg kg-1. Plant growth was reduced with soil-Cu levels above 150 mg kg-1 and soil pH below 6.5. However, soil-Cu levels above 330 mg kg-1 were necessary to reduce plant growth with soil pH above 6.5. Journal of environmental quality. Apr/June 1989. v. 18 (2). P. 195-197. Includes references. (NAL Call No.: DNAL QH540.J6).

0935

Different phenotypes associated with incompatible races and resistance genes in bacterial spot disease of pepper.
PLDIDE. Hibberd, A.M. Stall, R.E.; Bassett, M.J. St. Paul, Minn. : American Phytopathological Society. Plant disease. Dec 1987. v. 71 (12). p. 1075-1078. Includes references. (NAL Call No.: DNAL 1.9 P69P).

0936

Distribution and partial characterization of pCS1, a highly conserved plasmid present in Clavibacter michiganense subsp. sepedonicum.
PHYTAJ. Mogen, B.D. Oleson, A.E.; Sparks, R.B.; Gudmestad, N.C.; Secor, G.A. St. Paul, Minn. : American Phytopathological Society. Forty-nine strains of Clavibacter michiganense subsp. sepedonicum, (synonym Corynebacterium sepedonicum), the causal agent of potato bacterial ring rot, were screened for the presence of indigenous plasmids. Twenty-three of these strains contained a single plasmid with a molecular size of 50.6 +/- 0.9 kb as determined by a combination of contour length measurements, comparison of electrophoretic mobility with intact plasmids of known

molecular sizes, and summation of sizes of restriction fragments. Restriction digests and Southern hybridizations demonstrated that the plasmids from all positive strains were identical. The guanine plus cytosine content of this plasmid, designated pCS1, was determined to be 70.3%. Chromosomal DNA from the same C.m. sepedonicum strain had a guanine plus cytosine content of 72.4%. The plasmid copy number was found to be approximately 1.5 in strains that contain the autonomous form of pCS1. Southern hybridizations of chromosomal DNA from strains lacking the autonomous form of pCS1 revealed that all but one of the 26 tested strains contained the plasmid in integrated form. The extreme degree to which pCS1 has been conserved suggests that it encodes important, but unrecognized, metabolic functions. Phytopathology. Oct 1988. v. 78 (10). p. 1381-1386. ill. Includes references. (NAL Call No.: DNAL 464.8 P56).

0937

The effect of bacterial spot on yield and quality of fresh market tomatoes (Xanthomonas campestris).
Pohronezny, K.HJHSA. Volin, R.B. Alexandria : American Society for Horticultural Science. HortScience. Feb 1983. v. 18 (1). p. 69-70. Includes references. (NAL Call No.: SB1.H6).

0938

The effect of bactericides, tank mixing time and spray schedule on bacterial leaf spot of tomato.
Jones, J.B. Jones, J.P. s.l. : The Society. Proceedings of the ... annual meeting of the Florida State Horticulture Society. 1986. v. 98. p. 244-247. Includes references. (NAL Call No.: DNAL SB319.2.F6F56).

0939

The effect of ethylene and abscisic acid on symptom expression of bacterial ring rot in eggplant and potato.
APOJA. Kurowski, C.J. Gudmestad, N.C. Orono, Me. : Potato Association of America. American potato journal. July 1990. v. 67 (7). p. 443-459. Includes references. (NAL Call No.: DNAL 75.8 P842).

0940

Effect of inoculum dose and preparation, strain variation, and plant growth conditions on the eggplant assay for bacterial ring rot.
APOJA. Bishop, A.L. Slack, S.A. Orono, Me. : Potato Association of America. American potato journal. May 1987. v. 64 (5). p. 227-234. Includes references. (NAL Call No.: DNAL 75.8 P842).

0941

Effect of magnesium on the toxicity of copper to pepper/tomato leaf spot bacteria, Xanthomonas campestrix pv. vesicatoria.
Woltz, S.S. Jones, J.B.; Jones, J.P. S.l. : The Society. Proceedings of the ... annual meeting of the Florida State Horticulture Society. Aug 1988. v. 100. p. 221-222. Includes references. (NAL Call No.: DNAL SB319.2.F6F56).

0942

Effect of plant species and environmental conditions on epiphytic population sizes of Pseudomonas syringae and other bacteria.
PHYTA. O'Brien, R.D. Lindow, S.E. St. Paul, Minn. : American Phytopathological Society. Selected biological and environmental effects influenced epiphytic colonization of plants by Pseudomonas syringae, Escherichia coli, Salmonella typhimurium, Aeromonas hydrophila, and Rhizobium meliloti when tested in a growth chamber at 24 C. Epiphytic population size varied with plant host, environmental conditions, and among strains of P. syringae tested. Strains of P. syringae achieved only slightly larger population sizes than strains from other genera when incubated on inoculated plants for 48 hr, and near 100% relative humidity (RH). However, the strains of P. syringae maintained populations at least 25 times higher after a subsequent 72 hr at 40% RH. Epiphytic population sizes of 15 different strains of P. syringae varied up to 10-fold on a given plant species, indicating epiphytic diversity within this bacterial species. Relative population sizes of three strains of P. syringae on plants under field conditions were predicted by growth chamber populations. Neither epiphytic strains, pathogenic strains, or toxin producing groups were associated with greater epiphytic population sizes. Different plant species varied up to 17-fold in the size of bacterial populations supported. Maceration of inoculated plant tissue increased bacterial population size estimates relative to cells removed by sonication, but only after low RH incubations. Phytopathology. May 1989. v. 79 (5). p. 619-627. Includes references. (NAL Call No.: DNAL 464.8 P56).

0943

Effect of tank-mix holding time on tomato bacterial speck and early blight control, 1981 (Tomato (Lycopersicon esculentum 'VF134'), bacterial speck; Pseudomonas syringae pv tomato, early blight; Alternaria solani).
MacNab, A.A. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 84. (NAL Call No.: 464.9 AM31R).

0944

Effects of relative humidity on bacterial scab caused by Xanthomonas campestris pv. vesicatoria on pepper (Capsicum annuum).
Diab, S. Bashan, Y.; Okon, Y.; Henis, Y. St. Paul, Minn., American Phytopathological Society. Phytopathology. Sept 1982. v. 72 (9). p. 1257-1260. 25 ref. (NAL Call No.: 464.8 P56).

0945

Evaluation of chemical control of bacterial diseases in tomato.
Gitaitis, R.D. Jones, J.B.; McCarter, S.M. St. Paul, Minn. : APS Press, c1986. Methods for evaluating pesticides for control of plant pathogens / edited by Kenneth D. Hickey ; prepared jointly by the American Phytopathological Society and the Society of Nematologists. p. 205-209. Includes references. (NAL Call No.: DNAL SB960.M47 1986).

0946

Evaluation of fungicides for control of bacterial fruit spots on tomatoes, 1984.
FNETD. MacNab, A.A. Lukezic, F.L.; Levine, R. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1985. v. 40. p. 88. (NAL Call No.: DNAL 464.9 AM31R).

0947

Foliar diseases of tomatoes.
Gazaway, W. Mullen, J. Auburn, Ala. : The Service. Circular ANR - Cooperative Extension Service, Auburn University. In subseries: Horticulture. Apr 1987. (71). 4 p. ill. (NAL Call No.: DNAL S544.3.A2C47).

0948

Fruit and foliar disease control of tomatoes.
Baldwin, R.E. Blacksburg, Va. : Virginia Polytechnic Inst. and State University Cooperative Ext. Service. The Vegetable growers news. May/June 1987. v. 41 (6). p. 2-3. (NAL Call No.: DNAL 275.28 V52).

0949

Fungicide evaluation for early blight and bacterial speck control on tomatoes, 1981 (Tomato (Lycopersicon esculentum), bacterial speck; Pseudomonas syringae pv. tomato, early blight; Alternaria solani).
MacNab, A.A. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 84. (NAL Call No.: 464.9 AM31R).

0950

Fungicides for control of anthracnose, bacterial speck, late blight and buckeye rot on processing tomatoes, 1984.
FNETD. Riedel, R.M. Shambaugh, T.S. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1985. v. 40. p. 90-91. (NAL Call No.: DNAL 464.9 AM31R).

0951

Fungigation for control of early blight, Septoria leaf spot, bacterial leaf spot and anthracnose of tomato, 1983.
FNETD. Potter, H.S. Crawford, R.A. s.l. : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1985. v. 40. p. 88. (NAL Call No.: DNAL 464.9 AM31R).

0952

Gene-for-gene relationships specifying disease resistance in Xanthomonas campestris pv. vesicatoria--pepper interactions.
MPMIEL. Minsavage, G.V. Dahlbeck, D.; Whalen, M.C.; Kearney, B.; Bonas, U.; Staskawicz, B.J.; Stall, R.E. St. Paul, Minn. : APS Press. Molecular plant-microbe interactions : MPMI. Jan/Feb 1990. v. 3 (1). p. 41-47. ill. Includes references. (NAL Call No.: DNAL SB732.6.M65).

0953

Growing staked tomatoes in Arkansas (Varieties, bacterial disease control).
Montgomery, F.W. Little Rock, Ark. : The Service. Leaflet EL - Arkansas University, Cooperative Extension Service. Mar 1984. Mar 1984. (148,rev.). 11 p. ill. (NAL Call No.: 275.29 AR4LE).

0954

Hypersensitive response in tomato to Xanthomonas campestris pv. vesicatoria.
PLDRA. Jones, J.B. Scott, J.W. St. Paul, Minn. : American Phytopathological Society. Plant disease. Apr 1986. v. 70 (4). p. 337-339. Includes 25 references. (NAL Call No.: DNAL 1.9 P69P).

0955

Influence of timing of application and chemical on control of bacterial speck of tomato.
PLDRA. Jardine, D.J. Stephens, C.T. St. Paul, Minn. : American Phytopathological Society. Plant disease. May 1987. v. 71 (5). p. 405-408. Includes references. (NAL Call No.: DNAL 1.9 P69P).

0956

Inheritance of resistance to foliar bacterial spot of tomato incited by Xanthomonas campestris pv. vesicatoria.
JOSHB. Scott, J.W. Jones, J.B. Alexandria, Va. : The Society. Hawaii 7998 (foliage resistant to bacterial spot) was crossed with 'Walter' (susceptible) and F1, backcross, and F2 generations were derived. These genotypes were grown in the field at Bradenton, Fla. in the summers of 1984 and 1985 and inoculated with Xanthomonas campestris pv. vesicatoria, the incitant of bacterial spot. Disease severity for respective genotypes was similar both years, although somewhat greater in 1985. Disease severity in the F1 was intermediate to the parents, but slightly skewed toward resistance both years. The percentage of F2 plants with resistance comparable to Hawaii 7988 was 9.6% in 1984 and 4.6% in 1985. There was no evidence of cytoplasmic inheritance from three sets of reciprocal crosses tested in 1985. The data fit an additive-dominance genetic model, but dominance variance was negative both years, which indicates a small or negligible dominance effect. The negative dominance variance resulted in biased estimates of additive variance, narrow-sense heritability, and the number of effective factors. Nevertheless, narrow-sense hertibility was moderate to high. When incorporating this resistance into new genetic backgrounds, we suggest that a modified backcrossing scheme with rigorous disease screening be used to obtain plants from homozygous resistant BCF3 lines before crossing. Journal of the American Society for Horticultural Science. Jan 1989. v. 114 (1). p. 111-114. Includes references. (NAL Call No.: DNAL 81 SO12).

0957

Inhibitory effects of a pectin-enriched tomato cell wall fraction on Agrobacterium tumefaciens binding and tumor formation.
PLPHA. Neff, N.T. Binns, A.N.; Brandt, C. Rockville, Md. : American Society of Plant Physiologists. Plant physiology. Mar 1987. v. 83 (3). p. 525-528. Includes references. (NAL Call No.: DNAL 450 P692).

0958

Integrated pest management for Florida tomatoes.
PLDRA. Waddill, V.H. Schuster, D.J.; Sonoda, R.M. St. Paul, Minn. : American Phytopathological Society. Plant disease. Feb 1986. v. 70 (2). p. 96-102. ill., maps. Includes 31 references. (NAL Call No.: DNAL 1.9 P69P).

0959

Interaction between Glomus mosseae and Erwinia carotovora and its effects on the growth of tomato plants.
NEPHA. Garcia-Garrido, J.M. Ocampo, J.A. New York, N.Y. : Cambridge University Press. The New phytologist. Dec 1988. v. 110 (4). p. 551-555. Includes references. (NAL Call No.: DNAL 450 N42).

0960

Kinetin treatment of stolbur diseased plants and possibility of its application in chemotherapy.
Plavsic, B. Krivokapic, K.; Eric, Z. New York : Springer-Verlag, c1988. Mycoplasma diseases of crops : basic and applied aspects / Karl Maramorosch, S.P. Raychaudhuri, editors. p. 417-430. ill. Includes references. (NAL Call No.: DNAL SB737.M93).

0961

Mixtures of copper and maneb or mancozeb for control of bacterial spot of tomato and their compatibility for control of fungus diseases (Phytophthora infestans, Stemphylium solani, Xanthomonas campestris pv. vesicatoria, Florida).
Conover, R.A. Gerhold, N.R. S.l., The Society. Proceedings of the ... annual meeting of the Florida State Horticultural Society. 1981 (pub. 1982). v. 94. p. 154-156. Includes 4 ref. (NAL Call No.: 81 F66).

0962

Observations on double-cropping bell pepper and control of bacterial leaf spot in Palm Beach County.
Simons, J.N. S.l. : The Society. Proceedings of the ... annual meeting of the Florida State Horticulture Society. Aug 1988. v. 100. p. 226-232. ill. Includes references. (NAL Call No.: DNAL SB319.2.F6F56).

0963

Plant pathology fact sheet: diseases of field grown tomatoes.
Gay, J.D. Athens, Ga. : The Service. Leaflet - Cooperative Extension Service, University of Georgia. May 1990. (218,rev.). 6 p. ill. (NAL Call No.: DNAL 275.29 G29L).

0964

Plant pathology fact sheet: pepper diseases.
Gay, J.D. Athens, Ga. : The Service. Leaflet - Cooperative Extension Service, University of Georgia. May 1990. (77,rev.). 4 p. ill. (NAL Call No.: DNAL 275.29 G29L).

0965

Plant-row-spacing effect on insect activity, bacterial spot severity, and yield for staked-tomato production in west Florida.
Stanley, C.D. Schuster, D.J.; Jones, J.B. S.l. : The Society. Proceedings - Soil and Crop Science Society of Florida. 1988. v. 47. p. 212-214. Includes references. (NAL Call No.: DNAL 56.9 S032).

0966

Plasmid-mediated production of the phytotoxin coronatine in Pseudomonas syringae pv. tomato.
JOBAAY. Bender, C.L. Malvick, D.K.; Mitchell, R.E. Washington, D.C. : American Society for Microbiology. Pseudomonas syringae pv. tomato PT23.2 produces the chlorosis-inducing phytotoxin coronatine. Thirty-eight chlorosis-defective mutants of PT23.2 were previously generated by using the transposon Tn5. Five mutants contained Tn5 insertions in the indigenous plasmid pPT23A; the remaining 33 mutants either were missing pPT23A (29 mutants) or contained deletions in this plasmid (4 mutants). These results suggested that pPT23A was involved in coronatine production in strain PT23.2. This plasmid was introduced into P. syringae pv. syringae PS61, which does not produce coronatine. A bioassay for coronatine suggested that PS61(pPT23A) transconjugants were able to make this phytotoxin. In a chemical analysis, organic acids were isolated from PT23.2, PS61, and the transconjugant PS61(pPT23); these were derivatized to their methyl esters and analyzed by gas chromatography. The derivatized organic acids extracted from PT23.2 and PS61(pPT23A) contained peaks that corresponded to coronafacic acid, coronafacoylvaline, and coronatine, but these were absent in the extracts from the wild-type strain PS61. The identification of these components was confirmed by combined gas chromatography-mass spectrophotometry. Therefore, the acquisition of pPT23A by PS61 resulted in biosynthesis of coronafacic acid, coronafacoylvaline, and coronatine, clearly demonstrating the involvement of pPT23A in coronatine production in P. syringae pv. tomato. Journal of bacteriology. Feb 1989. v. 171 (2). p. 807-812. ill. Includes references. (NAL Call No.: DNAL 448.3 J82).

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Potential for postharvest disease in tomato fruit infiltrated with chlorinated water.
PLDIDE. Bartz, J.A. St. Paul, Minn. : American Phytopathological Society. Plant disease. Jan 1988. v. 72 (1). p. 9-13. Includes references. (NAL Call No.: DNAL 1.9 P69P).

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Potential sources of initial inoculum for bacterial speck in early planted tomato crops in Michigan: debris and volunteers from previous crops.
PLDIDE. Jardine, D.J. Stephens, C.T.; Fulbright, D.W. St. Paul, Minn. : American Phytopathological Society. Plant disease. Mar 1988. v. 72 (3). p. 246-249. Includes references. (NAL Call No.: DNAL 1.9 P69P).

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A predictive system for timing chemical applications to control Pseudomonas syringae pv. tomato, causal agent of bacterial speck.
PHYTAJ. Jardine, D.J. Stephens, C.T. St. Paul, Minn. : American Phytopathological Society. Phytopathology. June 1987. v. 77 (6). p. 823-827. Includes references. (NAL Call No.: DNAL 464.8 P56).

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Prevention--the key to controlling bacterial spot and bacterial speck of tomato (Xanthomonas vesicatoria).
Goode, M.J. Sasser, M. St. Paul, Minn., American Phytopathological Society. Plant disease. Sept 1980. v. 64 (9). p. 831-834. ill., map. 11 ref. (NAL Call No.: 1.9 P69P).

0971

Pseudomonas solanacearum genes controlling both pathogenicity on tomato and hypersensitivity on tobacco are clustered.
JOBAAY. Boucher, C.A. Van Gijsegem, F.; Barberis, P.A.; Arlat, M.; Zischek, C. Washington, D.C. : American Society for Microbiology. Journal of bacteriology. Dec 1987. v. 169 (12). p. 5626-5632. ill. Includes references. (NAL Call No.: DNAL 448.3 J82).

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Pseudomonas viridiflava: causal agent of bacterial leaf blight of tomato (Plants stressed by unfavorable environmental conditions, fluorescent bacteria, Florida).
Jones, J.B. Jones, J.P.; McCarter, S.M.; Stall, R.E. St. Paul, Minn. : American Phytopathological Society. Plant disease. Apr 1984. v. 68 (4). p. 341-342. Includes

references. (NAL Call No.: 1.9 P69P).

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Reduction of infection by Pseudomonas syringae pv. tomato using a nonpathogenic, copper-resistant strain combined with a copper bactericide.
PHYTAJ. Cooksey, D.A. St. Paul, Minn. : American Phytopathological Society. Phytopathology. May 1988. v. 78 (5). p. 601-603. Includes references. (NAL Call No.: DNAL 464.8 P56).

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Reproduction of Pasteuria penetrans in a tissue-culture system containing Meloidogyne javanica and Agrobacterium rhizogenes-transformed roots.
PHYTAJ. Verdejo, S. Jaffee, B.A. St. Paul, Minn. : American Phytopathological Society. A three-component tissue-culture system for the study of Pasteuria penetrans biology and for gnotobiotic production of spores is described. Meloidogyne javanica juveniles with or without P. penetrans spores were added to plates in which Agrobacterium rhizogenes-transformed tomato or potato roots were growing on solid Gamborg's B5 medium. After 39 days, both parasitized and nonparasitized females were observed on P. penetrans cultures. Although at least one spore was attached to the cuticle of each juvenile added to such root cultures, only one third of the adult females became infected with P. penetrans. The bacterium infected similar numbers of females in potato- and tomato-root cultures. Nematode reproduction (eggs/female) andspore production (spores/infected female) were much greater on tomato- than potato-root cultures. Trends toward lower numbers of eggs/culture and increased numbers of eggs/healthy female were observed in cultures inoculated with P. penetrans. Phytopathology. Oct 1988. v. 78 (10). p. 1284-1286. Includes references. (NAL Call No.: DNAL 464.8 P56).

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A second cluster of genes that specify pathogenicity and host response in Pseudomonas solanacearum.
MPMIEL. Huang, Y. St. Paul, Minn. : APS Press. Molecular plant-microbe interactions : MPMI. Jan/Feb 1990. v. 3 (1). p. 48-53. ill. Includes references. (NAL Call No.: DNAL SB732.6.M65).

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Survival of Xanthomonas campestris pv. vesicatoria in Florida on tomato crop residue, weeds, seeds, and volunteer tomato plants.
PHYTA. Jones, J.B. Pohronezny, K.L.; Stall, R.E.; Jones, J.P. St. Paul, Minn. : American Phytopathological Society. Phytopathology. Apr 1986. v. 76 (4). p. 430-434. Includes 31 references. (NAL Call No.: DNAL 464.8 P56).

0977

A theory on occurrence of tomato bacterial wilt in Arkansas.
AKFRAC. Goode, M.J. Fayetteville, Ark. : The Station. Arkansas farm research - Arkansas Agricultural Experiment Station. Sept/Oct 1986. v. 35 (5). p. 8. ill. (NAL Call No.: DNAL 100 AR42F).

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Tomato bacterial speck and early blight control with fungicides, 1980 (Tomato (Lycopersicon esculentum 'VF134'), bacterial speck; Pesuodomonas tomato, early blight; Alternaria solani).
MacNab, A.A. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1981. v. 36. p. 78-79. (NAL Call No.: 464.9 AM31R).

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Tomato bacterial speck and early blight control with fungicides, 1981 (Tomato (Lycopersicon esculentum 'VF134'), bacterial speck; Pseudomonas syringae pv tomato, early blight; Alternaria solani).
MacNab, A.A. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 85. (NAL Call No.: 464.9 AM31R).

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Tomato bacterial speck and early blight control with fungicides, 1982 (Pseudomonas syringae pv. tomato, Alternaria solani, Lycoersicon esculentum).
MacNab, A.A.FNETD. (s.l.) : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1983. v. 38. p. 110. (NAL Call No.: 464.9 AM31R).

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Tomato bacterial speck and early blight control with three rates of fixed copper tank-mixed with Mancozeb, 1981 (Tomato (Lycopersicon esculentum 'VF134'), bacterial speck; Pseudomonas syringae pv tomato, early blight; Alternaria solani).
MacNab, A.A. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 85. (NAL Call No.: 464.9 AM31R).

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Tomato bacterial speck control with fungicides, 1979 (Tomato (Lycopersicon esculentum 'Merit'), bacterial speck; Pseudomonas tomato, early blight; Alternaria solani).
MacNab, A.A. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1980. v. 35. p. 93. (NAL Call No.: 464.9 AM31R).

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Tween media for semiselective isolation of Xanthomonas campestris pv. vesicatoria from soil and plant material.
PLDRA. McGuire, R.G. Jones, J.B.; Sasser, M. St. Paul, Minn. : American Phytopathological Society. Plant disease. Sept 1986. v. 70 (9). p. 887-891. ill. Includes references. (NAL Call No.: DNAL 1.9 P69P).

0984

Weather dependence, yield losses, and control of bacterial speck of tomato caused by Pseudomonas tomato.
Yunis, H. Bashan, Y.; Okon, Y.; Henis, Y. St. Paul, Minn., American Phytopathological Society. Plant disease. Oct 1980. v. 64 (10). p. 937-939. ill. 12 ref. (NAL Call No.: 1.9 P69P).

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Aluminum-surfaced mulch: an approach to the control of tomato spotted wilt virus in solanaceous crops.
PLDIDE. Greenough, D.R. Black, L.L.; Bond, W.P. St. Paul, Minn. : American Phytopathological Society. Plant disease. Oct 1990. v. 74 (10). p. 805-808. Includes references. (NAL Call No.: DNAL 1.9 P69P).

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Biotechnology and the economics of reducing viral disease losses in U.S. potato and tomato production.
AAREEZ. Love, J.M. Tauer, L.W. New York, N.Y. : Springer. Applied agricultural research. 1988. v. 3 (4). p. 187-194. Includes references. (NAL Call No.: DNAL S539.5.A77).

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The cDNA of cucumber mosaic virus-associated satellite RNA has in vivo biological properties.
BBRC. Jacquemond, M. Lauquin, G.J.M. Duluth, Minn. : Academic Press. Biochemical and biophysical research communications. Feb 29, 1988. v. 151 (1). p. 388-395. ill. Includes references. (NAL Call No.: DNAL 442.8 B5236).

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Concentration and distribution of mild and severe strains of potato spindle tuber viroid in cross-protected tomato plants.
PHYTAJ. Khoury, J. Singh, R.P.; Boucher, A.; Coombs, D.H. St. Paul, Minn. : American Phytopathological Society. Analysis by return of polyacrylamide gel electrophoresis (R-PAGE) of a mild strain of potato spindle tuber viroid (MA-PSTV) and a severe strain (S-PSTV) showed that both strains replicated in the plant at a similar rate and could be distinguished from each other by different electrophoretic mobilities. In singly infected plants, both strains were detected 10 days after inoculation; in doubly infected plants they were detected 8 days after inoculation. MA-PSTV was detected in all the leaflets of tomato plants 14 days postinoculation, a duration often used before challenge inoculation. In MA-PSTV-protected plants, the challenge strain (S-PSTV) was first detected 21 days after inoculation, and its concentration increased with time. Symptoms of S-PSTV appeared 48 days after challenge inoculation. In unprotected plants, S-PSTV was detected 10 days and the symptoms appeared 21-28 days after inoculation. In the top leaves of the MA-PSTV-protected plants, S-PSTV totally replaced the protecting strain in the later stages of infection. Both strains multiplied in the middle and bottom leaves of MA-PSTV-protected plants. In S-PSTV-protected plants, MA-PSTV as a challenge strain was detected only in the later stages of infection but was present in top, middle, and bottom leaves of doubly infected plants. Both strains were found to be present in sepals, petals, anthers, and pistils in MA-PSTV-protected and S-PSTV-challenged plants. Fruit pulp contained only S-PSTV in MA-PSTV-protected and S-PSTV-challenged plants but contained both strains in S-PSTV-protected and MA-PSTV-challenged plants. Only low percentages of seeds were infected with MA-PSTV, and none were infected with S-PSTV. Phytopathology. Oct 1988. v. 78 (10). p. 1331-1336. ill. Includes references. (NAL Call No.: DNAL 464.8 P56).

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Control of viral infection in transgenic plants by expression of satellite RNA of cucumber mosaic virus.
Baulcombe, D. Devic, M.; Jaegle, M.; Harrison, B. New York, N.Y. : Alan R. Liss. UCLA symposia on molecular and cellular biology. In the series analytic: Molecular Biology of Plant-Pathogen Interactions. Meeting held Mar 26-Apr 1, 1988, Steamboat Springs, Colorado. 1989. v. 101. p. 257-267. ill. Includes references. (NAL Call No.: DNAL QH506.U34).

0990

Cross-protection and interference between electrophoretically distinct strains of cucumber mosaic virus in tomato (Lycopersicon esculentum).
Dodds, J.A. New York, Academic Press. Virology. Apr 15, 1982. v. 118 (1). p. 235-240. ill. Includes 1 p. ref. (NAL Call No.: 448.8 V81).

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Cross protection between strains of cucumber mosaic virus: effect of host and type of inoculum on accumulation of virions and double-stranded RNA of the challenge strain.
VIRLA. Dodds, J.A. Lee, S.Q.; Tiffany, M. New York, N.Y. : Academic Press. Virology. July 30, 1985. v. 144 (2). p. 301-309. ill. Includes references. (NAL Call No.: DNAL 448.8 V81).

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Effect of an aphid-transmitted yellowing virus on yield and quality of staked tomatoes (Myzus persicae).
Zitter, T.A. Everett, P.H. St. Paul, Minn., American Phytopathological Society. Plant disease. June 1982. v. 66 (6). p. 456-458. ill. Includes 5 ref. (NAL Call No.: 1.9 P69P).

0993

Effect of cucumber mosaic virus inoculation at successive weekly intervals on growth and yield of pepper (Capsicum annuum) plants.
PLDRA. Agrios, G.N. Walker, M.E.; Ferro, D.N. St. Paul, Minn. : American Phytopathological Society. Plant disease. Jan 1985. v. 69 (1). p. 52-55. ill. Includes 16 references. (NAL Call No.: DNAL 1.9 P69P).

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Effects of a necrosis-inducing isolate of alfalfa mosaic virus on stand loss in tomatoes (Lycopersicon esculentum).
Knorr, D.A.PHYTA. Laemmlen, F.F.; Dawson, W.O. St. Paul : American Phytopathological Society. Phytopathology. Nov 1983. v. 73 (11). p. 1554-1558. ill. Includes references. (NAL Call No.: 464.8 P56).

0995

Effects of exogenous auxins on tomato tissue infected with the citrus exocortis viroid (Hybrid of Lycopersicon esculentum and Lycopersicon peruvianum).
Duran-Vila, N. Semancik, J.S. St. Paul, American Phytopathological Society. Phytopathology. July 1982. v. 72 (7). p. 777-781. ill. 13 ref. (NAL Call No.: 464.8 P56).

0996

The effects of heterologous and homologous coat protein on alkaline disassembly of tobacco and tomato isolated of tobacco mosaic virus.
Pelcher, L.E. Walmsley, S.L.; Mackenzie, S.L. New York, Academic Press. Virology. Aug 1980. v. 105 (1). p. 287-290. ill. 10 ref. (NAL Call No.: 448.8 V81).

0997

Effects of low-molecular-weight RNA and temperature on tomato bushy stunt virus symptom expression.
PHYTAJ. Hillman, B.I. Morris, T.J.; Schlegel, D.E. St. Paul, Minn. : American Phytopathological Society. Phytopathology. Mar 1985. v. 75 (3). p. 361-365. ill. Includes 28 references. (NAL Call No.: DNAL 464.8 P56).

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Effects of magnesium on tobacco mosaic virus-infected eggplants.
Seaker, E.M. Bergman, E.L.; Romaine, C.P. Alexandria, Va., The Society. Journal of the American Society for Horticultural Science. Jan 1982. v. 107 (1). p. 162-166. Includes 22 ref. (NAL Call No.: 81 S012).

0999

Feasibility of cross-protection for control of tomato mosaic virus in fresh market field-grown tomatoes.
Ahoonmanesh, A. Shalla, T.A. St. Paul, Minn., American Phytopathological Society. Plant disease. Jan 1981. v. 65 (1). p. 56-58. 14 ref. (NAL Call No.: 1.9 P69P).

1000

Increased value of resistance to infection if used in integrated pest management control of tomato curly top.
PHYTAJ. Martin, M.W. Thomas, P.E. St. Paul, Minn. : American Phytopathological Society. Phytopathology. May 1986. v. 76 (5). p. 540-542. Includes 19 references. (NAL Call No.: DNAL 464.8 P56).

1001

Influence of light quality on translocation of tomato yellow top virus and potato leaf roll virus in Lycopersicon peruvianum and some of its tomato hybrids.
PHYTAJ. Thomas, P.E. Hassan, S.; Mink; G.I. St. Paul, Minn. : American Phytopathological Society. Green peach aphids (Myzus persicae) could not recover tomato yellow top virus (TYTV) or potato leaf roll virus (PLRV) from Lycopersicon peruvianum, U.S. Department of Agriculture Plant Introduction 128655, and some of its hybrid progenies after they were aphid inoculated as seedlings with the same viruses in a glasshouse. After these plants were graft inoculated, however, aphids routinely recovered TYTV and PLRV from some plants but not others. The infected plants were tolerant (asymptomatic). Their apparent immunity to infection by aphid inoculation was expressed in a glasshouse or in direct sunlight but not in houses covered with a translucent fiberglass material. Virus could be recovered from tolerant plants inoculated by aphids in a glasshouse but only after they were transferred to and incubated in fiberglass house. The transfer could be delayed at lease 8 wk after aphid inoculation without affecting the eventual recovery of virus. Virus could not be recovered from new growth of some tolerant plants infected by graft inoculation after the plants were severed from the infected graft scion. Similarly, virus could not be recovered from new growth of some plants infected by aphid inoculation in the fiberglass house after the plants were transferred to the glasshouse. These results are explicable on the basis that a virus transport function that controls release of virus from initially infected cells was completely or partially inhibited in the glasshouse. Phytopathology. Sept 1988. v. 78 (9). p. 1160-1164. Includes references. (NAL Call No.: DNAL 464.8 P56).

1002

Levels, dependability, and usefulness of resistance to tomato curly top disease.
PLDRA. Martin, M.W. Thomas, P.E. St. Paul, Minn. : American Phytopathological Society. Plant disease. Feb 1986. v. 70 (2). p. 136-141. Includes 22 references. (NAL Call No.: DNAL 1.9 P69P).

1003

Management of insect pests of broccoli, cowpeas, spinach, tomatoes, and peanuts with chemigation by insecticides in oils, and reduction of watermelon virus 2 by chemigated oil.
Chalfant, R.B. Young, J.R. College Park, Md. : Entomological Society of America. Journal of economic entomology. Oct 1984. v. 77 (5). p. 1323-1326. Includes 6 references. (NAL Call No.: 421 J822).

1004

A model to explain the "cross-protection" phenomenon shown by plant viruses and viroids.
Palukaitis, P. Zaitlin, M. New York : Macmillan Publishing Company. Plant-microbe interactions : molecular and genetic perspectives. 1984. v. 1. p. 420-429. ill. Includes references. (NAL Call No.: DNAL QR351.P53).

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Monopartite spherical viruses.
Sehgal, O.P. White, J.A.; Mandahar, C.L. Boca Raton, Fla. : CRC Press, 1989. Plant viruses / editor, C.L. Mandahar. v. 1 p. 33-73. ill. Includes references. (NAL Call No.: DNAL QR351.P58).

1006

Mutations in the tobacco mosaic virus 30-kD protein gene overcome Tm-2 resistance in tomato.
Meshi, T. Motoyoshi, F.; Maeda, T.; Yoshiwoka, S.; Watanabe, H.; Okada, Y. Rockville, Md. : American Society of Plant Physiologists. A resistance-breaking strain of tobacco mosaic virus (TMV), Ltb 1, is able to multiply in tomatoes with the Tm-2 gene, unlike its parent strain, L. Nucleotide sequence analysis of Ltb 1 RNA revealed two amino acid changes in the 30-kD protein: from Cys68 to Phe and from Glu133 to Lys (from L to Ltb 1). Strains with these two changes generated in vitro multiplied in tomatoes with the Tm-2 gene and induced essentially the same symptoms as those caused by Ltb 1. Strains with either one of the two changes did not overcome the resistance as efficiently as Ltb 1, although increased levels of multiplication were observed compared with the L strain. Results showed that both mutations are involved in the resistance-breaking property of Ltb 1. Sequence analysis indicated that another resistance-breaking strain and its parent strain had two amino acid changes in the 30-kD protein: from Glu52 to Lys and from Glu133 to Lys. The fact that the amino acid changes occurred in or near the well conserved regions in the 30-kD protein suggests that the mechanism of Tm-2 resistance may be closely related to the fundamental function of the 30-kD protein, presumably in cell-to-cell movement. The Plant cell. May 1989. v. 1 (5). p. 515-522. ill. Includes references. (NAL Call No.: DNAL QK725.P532).

1007

Plant virus-specific transport function. II. A factor controlling virus host range (Tobacco mosaic virus, potato virus X, barley stripe mosaic virus, tomatoes, beans, wheat).
Taliansky, M.E.VIRLA. Malyshenko, S.I.; Pshennikova, E.S.; Atabekov, J.G. New York : Academic Press. Virology. Oct 30, 1982. v. 122 (2). p. 327-331. 2 p. ref. (NAL Call No.: 448.8 V81).

1008

Quantification of disease resistance that reduces the rate of tobacco etch virus epidemics in bell pepper.
PHYTA. Padgett, G.B. Nutter, F.W. Jr.; Kuhn, C.W.; All, J.N. St. Paul, Minn. : American Phytopathological Society. Tobacco etch epidemics, caused by tobacco etch virus (TEV), were monitored in three pepper genotypes over a 3-yr period at two locations in northeast Georgia. The three genotypes were Yolo Wonder B (susceptible), Tambel 2 (moderately resistant), and Asgrow-XPH-5021 (moderately resistant). The effect of host resistance on the development of TEV epidemics was indicated by the following results: 1) final TEV disease incidence was 45% less in resistant genotypes, 2) relative area-under-the-disease-progress curve was 42-68% less in resistant genotypes, 3) apparent infection rate was about 50% less in resistant genotypes, and 4) time for TEV disease incidence to reach 50% was delayed 23-37 days in resistant genotypes. All four methods of quantifying the effect of host resistance on TEV disease progression were highly correlated. The consequence of the rate-reducing resistance in Tambel 2 and Asgrow-XPH-5021 was to increase fruit yield (average of 24%), fruit weight (14%), and number of fruit when compared to susceptible Yolo Wonder B. Phytopathology. May 1990. v. 80 (5). p. 451-455. Includes references. (NAL Call No.: DNAL 464.8 P56).

1009

Satellite-mediated protection of tomato against cucumber mosaic virus. I. Greenhouse experiments and simulated epidemic conditions in the field.
PLDIDE. Montasser, M.S. Tousignant, E.; Kaper, J.M. St. Paul, Minn. : American Phytopathological Society. Plant disease. Jan 1991. v. 75 (1). p. 86-92. ill. Includes references. (NAL Call No.: DNAL 1.9 P69P).

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Satellite RNA for the control of plant diseases.
Tien, P. Dakland : Division of Agricultural and Natural Resources, University of California, c1990. Risk assessment in agricultural biotechnology : proceedings of the International Conference, August 1988 / technical authors, James J. Marois, and George Bruening . p. 29-37. Includes references. (NAL Call No.: DNAL S494.5.B563R5).

1011

Serological grouping of tomato ringspot virus isolates: implications for diagnosis and cross-protection.
PHYTAJ. Bitterlin, M.W. Gonsalves, D. St. Paul, Minn. : American Phytopathological Society. Phytopathology. Mar 1988. v. 78 (3). p. 278-285. ill. Includes references. (NAL Call No.: DNAL 464.8 P56).

1012

Site-directed mutagenesis of a plant viral satellite RNA changes its phenotype from ameliorative to necrogenic.
PNASA. Sleat, D.E. Palukaitis, P. Washington, D.C. : The Academy. Proceedings of the National Academy of Sciences of the United States of America. Apr 1990. v. 87 (8). p. 2946-2950. ill. Includes references. (NAL Call No.: DNAL 500 N21P).

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Studies on the replication of tomato golden mosaic virus and the construction of gene vectors.
Coutts, R.H.A. Buck, K.W.; Roberts, E.J.F.; Brough, C.L.; Hayes, R.J.; Macdonald, H.; MacDowell, S.W.; Petty, I.T.D.; Slomka, M.J.; Hamilton, W.D.D. New York, N.Y. : Alan R. Liss. UCLA symposia on molecular and cellular biology. In the series analytic: Molecular Strategies for Crop Protection / edited by Charles J. Arntzen and Clarence Ryan. Proceedings of a Symposium held Mar 30-Apr 6, 1986, Steamboat Springs, Colorado. 1987. v. 48. p. 307-318. Includes references. (NAL Call No.: DNAL QH506.U34).

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Tomato spotted wilt virus and western flower thrips: update.
Green, J.L. Corvallis, Dr. : The Service. Drnamentals northwest - Cooperative Extension Service, Dregon State Univeristy. July/Aug 1989. v. 13 (4). p. 4-5. Includes references. (NAL Call No.: DNAL SB403.07).

1015

Tomato spotted wilt virus: from greenhouse flowers to field vegetables.
Zitter, T. Batavia, N.Y. : Agricultural Div. of Coop Extension, Four Western Plain Counties, N.Y. State. Ag impact. Mar 1989. v. 16 (3). p. 15-16. (NAL Call No.: DNAL S544.3.N7A45).

1016

Tomato spotted wilt virus in Minnesota.
Pfleger, F.L. Ascerno, M.E. Minneapolis, Minn. : Agricultural Extension Service, University of Minnesota. Minnesota State florists' bulletin. June 1989. v. 38 (3). p. 8-12. Includes references. (NAL Call No.: DNAL 275.28 M664).

1017

Using plant viruses for disease control.
HJHSA. Hamilton, R.I. Alexandria, Va. : American Society for Horticultural Science. HortScience. Paper presented at the "Symposium on Virus Diseases: A Dilema for Plant Breeders," August 7, 1984, Vancouver, British Columbia. Oct 1985. v. 20 (5). p. 848-852. Includes 69 references. (NAL Call No.: DNAL SB1.H6).

1018

Variable patterns of expression of luciferase in transgenic tobacco leaves.
PNASA. Barnes, W.M. Washington, D.C. : The Academy. A carboxyl-terminally modified firefly luciferase, encoded as a gene fusion to the neomycin phosphotransferase gene (which confers kanamycin resistance), was found to be enzymatically active for both enzymes when expressed in bacteria and in transgenic plants. A military-type starlight vision system was used to conveniently analyze the pattern of gene expression in transgenic tobacco plant leaves. Transgenic tobacco plants which expressed luciferase uniformly in all areas of the leaf, and assays for luciferin, demonstrated that luciferin rapidly penetrates all regions of a tobacco leaf in at least two dimensions. Depending on the test gene structure or, presumably, on the transferred DNA (T-DNA) insertional context, other transgenic plants were obtained that expressed luciferase with a wide range of nonuniform patterns from nominally the same cauliflower mosaic virus 35S promoter. For instance, the

veins can be dark, while only the interveinal regions of the leaf lamina glow, or only the small capillary veins glow, or only the major veins glow. Local and/or systemic induction in response to wounding was also demonstrated. Proceedings of the National Academy of Sciences of the United States of America. Dec 1990. v. 87 (23). p. 9183-9187. ill. Includes references. (NAL Call No.: DNAL 500 N21P).

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Virus gene transfer offers hope for genetic pest control.
HARAA. Bisaro, D.M. Gardiner, W.E.; Sunter, G.; Chang, I.D. Auburn, Ala. : The Station. Highlights of agricultural research - Alabama Agricultural Experiment Station. Fall 1986. v. 33 (3). p. 8. ill. (NAL Call No.: DNAL 100 AL1H).

1020

Allelopathic substances in asparagus roots: extraction, characterization, and biological activity.
JOSHB. Hazebroek, J.P. Garrison, S.A.; Gianfagna, T. Alexandria, Va. : The Society. Aqueous extracts of asparagus (Asparagus officinalis L.) roots inhibited seed germination in tomato and lettuce, but not in cucumber. The extracts reduced hypocotyl growth in lettuce, shoot growth in asparagus, and inhibited radicle elongation in barley, lettuce, and asparagus. Seedling growth in tomato and two cultivars of wheat were not affected. Inhibition was concentration-dependent. Radicle growth in 'Grand Rapids' lettuce was sensitive to an extract concentration as low as 0.05 g dry root tissue/100 ml H20. Asparagus radicles were more sensitive than asparagus shoots. In one experiment, phytotoxicity of crude extract was not altered by autoclaving. Aqueous root extracts of A. racemosis. Willd. also inhibited germi nation and radicle growth in 'Grand Rapids' lettuce. A crude extract was purified by solvent partitioning, and charcoal adsorption, cation exchange, and thin-layer chromatography (TLC). A band from the TLC was found to fluoresce under ultraviolet light, react with phenolic-sensitive localization reagents, and inhibit the growth of lettuce and asparagus radicles. Journal of the American Society for Horticultural Science. Jan 1989. v. 114 (1). p. 152-158. Includes references. (NAL Call No.: DNAL 81 SO12).

1021

Blossom end rot of tomatoes, peppers, and eggplant--its cause and how to prevent it.
Johnson, W.B. New Brunswick, N.J. : The Service. FS - Cooperative Extension Service, Cook College. 1984. (O11). 2 p. (NAL Call No.: DNAL S544.3.N5F7).

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Carbon--a plant nutrient, deficiency and sufficiency.
JPNUDS. Schwarz, N. Strain, B.R. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. 1990. v. 13 (9). p. 1073-1078. (NAL Call No.: DNAL QK867.J67).

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Cottonseed oil and safer insecticidal soap: effects on cotton and vegetable pests and phytotoxicity.
SENTD. Butler, G.D. Jr. Henneberry, T.J. College Station, Tex. : Southwestern Entomological Society. The Southwestern entomologist. Sept 1990. v. 15 (3). p. 257-264. Includes references. (NAL Call No.: DNAL QL461.S65).

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Effect of iron status on verticillium wilt disease and on in vitro production of siderophores by Verticillium dahliae.
JPNUDS. Barash, I. Zion, R.; Krikun, J.; Nachimas, A. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. Paper presented at the "Fourth International Symposium on Iron Nutrition and Interactions in Plants," July 6-9, 1987, University of New Mexico, Albuquerque. June/Nov 1988. v. 11 (6/11). p. 893-905. Includes references. (NAL Call No.: DNAL QK867.J67).

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Effect of magnesium fertilization on yield and leaf composition of tomato plants.
JPNUDS. Elemin, O.M. Wilcox, G.E. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. 1985. v. 8 (11). p. 999-1012. Includes 22 references. (NAL Call No.: DNAL QK867.J67).

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Effect of sulfur deficiency and excess on yield and sulfur accumulation in tomato plants.
JPNUDS. Cerda, A. Martinez, V.; Caro, M.; Fernandez, F.G. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. 1984. v. 7 (11). p. 1529-1543. Includes 14 references. (NAL Call No.: DNAL QK867.J67).

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Effects of boron stress on copper enzyme activity in tomato (Deficiency).
Brown, J.C. AR-BARC. New York, Marcel Dekker. Journal of plant nutrition. 1979. v. 1 (1). p. 39-53. ill. 21 ref. (NAL Call No.: QK867.J67).

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Ethylene evolution and polyamine accumulation by tomato subjected to interactive stresses of ammonium toxicity and potassium deficiency.
JOSHB. Corey, K.A. Barker, A.V. Alexandria, Va. : The Society. Tomato plants (Lycopersicon esculentum Mill. 'Heinz 1350', yellow-green-5, and neglecta-1) were grown in sand culture with 15mM NH4+ or NO3- and with K+ varying from 0 to 8 mM. Other nutrients were provided at the concentrations of Hoagland's solution. The medium supplying NH4+ was buffered with CaCO3 (pH 6.9) or was unbuffered (pH 3.4). Silver ions (0.01 micromole) were incorporated in the nutrient solution in one experiment. Ammonium nutrition relative to NO3- nutrition elevated rates of ethylene evolution from all genotypes, but yg-5 and neg-1 showed resistance to NH4+ toxicity and exhibited relatively low ethylene evolution. Ethylene evolution declined as K+ supply increased. Accelerated rates of ethylene evolution did not occur at tissue K+

concentrations greater than 10 g/kg of the dry weights of shoots with NO3- nutrition, but higher K+ levels were required with NH4+ nutrition. Putrescine concentrations in leaves of 'Heinz 1350' supplied with NH4+ were 2 to 5 times greater than in leaves of plants supplied with NO3-. Potassium deficiency increased putrescine accumulation regardless of N form. Spermidine concentrations in leaves of plants supplied with NH4+ were lower than in those supplied with NO3-, whereas spermine concentrations were unaffected by treatments. 'Heinz 1350' grown in (NH4+)-based nutrient solutions with 0.01 micromole Ag+ had low rates of ethylene evolution and developed few symptoms of NH4+ toxicity. Quantities of ethylene and putrescine produced by tomato genotypes susceptible to the nutritional stresses were linked directly to the degree of stress imposed, and symptoms of NH4+ toxicity were related to increased ethylene synthesis. Journal of the American Society for Horticultural Science. July 1989. v. 114 (4). p. 651-655. Includes references. (NAL Call No.: DNAL 81 SO12).

1029

Ethylene evolution by tomato plants under nutrient stress.
HJHSA. Barker, A.V. Corey, K.A. Alexandria, Va. : American Society for Horticultural Science. HortScience. Feb 1988. v. 23 (1). p. 202-203. Includes references. (NAL Call No.: DNAL SB1.H6).

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Ethylene evolution by tomato plants under stress of ammonium toxicity.
HJHSA. Corey, K.A. Barker, A.V.; Craker, L.E. Alexandria, Va. : American Society for Horticultural Science. HortScience. June 1987. v. 22 (3). p. 471-473. Includes references. (NAL Call No.: DNAL SB1.H6).

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Evidence for involvement of phytochrome in tumor development in plants.
PLPHA. Morrow, R.C. Tibbitts, T.W. Rockville, Md. : American Society of Plant Physiologists. Plant physiology. Dec 1988. v. 88 (4). p. 1110-1114. ill. Includes references. (NAL Call No.: DNAL 450 P692).

1032

External and internal blotchy ripening and fruit elemental content of trickle-irrigated tomatoes as affected by N and K application time.
JOSHB. Dangler, J.M. Locascio, S.J. Alexandria, Va. : The Society. Tomatoes (Lycopersicon esculentum Mill.) were grown on polyethylene-mulched beds of an Arrendondo fine sand during two seasons to evaluate the effects of trickle irrigation-applied N and/or K, percentages of trickle-applied nutrient(s) (50%, 75%, and 100%), and schedules of nutrient application (variable, 2% to 12.5% of total amount weekly, or constant, 8.3% of the total amount weekly) on the occurrence of fruit external and internal blotchy ripening and fruit mineral nutrient concentration. Trickle-applied fertilizer was injected into the irrigation water weekly during the first 12 weeks of each season. External and internal blotchy ripening were less severe with trickle-applied N supplied as N + K or N than with preplant-applied N. Trickle-applied N + K or N resulted in higher fruit concentrations of N, P, K, Ca, and Mg than with all preplant-applied N. Internal fruit quality improved slightly as the trickle-applied percentage of N and/or K increased from 50% to 100%, but significant differences in exterior quality were not obtained. Internal fruit quality was higher early in the season than late in the season during both years, but this response was not associated with fruit elemental concentration. The weekly schedule of nutrient injection had no significant effect on fruit quality or fruit elemental concentration. Highest yields of high-quality fruit were obtained with 50% trickle-applied N + K. Journal of the American Society for Horticultural Science. July 1990. v. 115 (4). p. 547-549. Includes references. (NAL Call No.: DNAL 81 SO12).

1033

Flooding stress and the root development of several tomato genotypes.
HJHSA. Poysa, V.W. Tan, C.S.; Stone, J.A. Alexandria, Va. : American Society for Horticultural Science. HortScience. Feb 1987. v. 22 (1). p. 24-26. Includes references. (NAL Call No.: DNAL SB1.H6).

1034

Function of rhizodermal transfer cells in the Fe stress response mechanism of Capsicum annuun L.
PLPHA. Landsberg, E.C. Rockville, Md. : American Society of Plant Physiologists. Plant physiology. Oct 1986. v. 82 (2). p. 511-517. ill. Includes references. (NAL Call No.: DNAL 450 P692).

1035

Further observations on the toxicity of black walnut on tomatoes and some other plants (Juglans nigra).
MacDaniels, L.H. (s.l.), The Association. Annual report - Northern Nut Growers Association. 1980. 1980. (71st). p. 112-126. ill. Includes 8 ref. (NAL Call No.: 94.69 N81).

1036

Induction of intumescence injury on leaf disks.
JOSHB. Morrow, R.C. Tibbitts, T.W. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Mar 1987. v. 112 (3). p. 304-306. ill. Includes references. (NAL Call No.: DNAL 81 S012).

1037

Inheritance of resistance to blotchy ripening in processing tomatoes.
JOSHB. Dick, J.A. Shattuck, V.I. Alexandria, Va. : The Society. Inheritance of resistance to blotchy ripening in tomato (Lycopersicon esculentum Mill.) cultivars intended for machine harvest was studied in two diallel crosses using the Hayman and Griffing analyses. Additive effects were most important as indicated by the high level of general combining ability compared with specific combining ability. Some hybrids performed better than the mid-parent mean; however, heterosis for resistance to blotch above the best inbred line was not evident. Epistasis occurred between recessive genes in two parents, resulting in reduced blotch. No significant interaction between the expression of blotch in diallel progeny and K availability was evident. Genotype-environment interaction was significant, but relative variation in blotch between experiments only occurred in cultivars with an intermediate level of resistance. Journal of the American Society for Horticultural Science. May 1990. v. 115 (3). p. 503-508. ill. Includes references. (NAL Call No.: DNAL 81 S012).

1038

Interpreting plant responses to clinostating (Epinasty, cocklebur, tomatoes, castor beans). I. Mechanical stresses (leaf flopping) and ethylene.
Salisbury, F.B. Wheeler, R.M. Rockville, Md., American Society of Plant Physiologists. Plant physiology. Apr 1981. v. 67 (4). p. 676-685. ill. 45 ref. (NAL Call No.: 450 P692).

1039

Iron-stress induced redox activity in tomato (Lycopersicum esculentum Mill.) is localized on the plasma membrane.
PLPHA. Buckhout, T.J. Bell, P.F.; Luster, D.G.; Chaney, R.L. Rockville, Md. : American Society of Plant Physiologists. Tomato plants (Lycopersicum esculentum Mill.) were grown for 21-days in a complete hydroponic nutrient solution including Fe3+-ethylenediamine-di(o-hydroxyphenylacetate) and subsequently switched to nutrient solution withholding Fe for 8 days to induce Fe stress. The roots of Fe-stressed plants reduced chelated Fe at rates sevenfold higher than roots of plants grown under Fe-sufficient conditions. The response in intact Fe-deficient roots was localized to root hairs, which developed on secondary roots during the period of Fe stress. Plasma membranes (PM) isolated by aqueous two-phase partitioning from tomato roots grown under Fe stress exhibited a 94% increase in rates of NADH-dependent Fe3+ citrate reduction compared to PM isolated from roots of Fe-sufficient plants. Optimal detection of the reductase activity required the presence of detergent indicating structural latency. In contrast, NADPH-dependent Fe3+-citrate reduction was not significantly different in root PM isolated from Fe-deficient versus Fe-sufficient plants and proceeded at substantially lower rates than NADH-dependent reduction. Mg2+-ATPase activity was increased 22% in PM from roots of Fe-deficient plants compared to PM isolated from roots of Fe-sufficient plants. The results localized the increase in Fe reductase activity in roots grown under Fe stress to the PM. Plant physiology. May 1989. v. 90 (1). p. 151-156. Includes references. (NAL Call No.: DNAL 450 P692).

1040

Iron stress response in tomato affected by potassium and renewing nutrient solutions.
JPNUDS. Jolley, V.D. Brown, J.C. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. 1985. v. 8 (6). p. 527-541. Includes 14 references. (NAL Call No.: DNAL QK867.J67).

1041

Iron-stress response mechanism and iron uptake in iron-efficient and -inefficient tomatoes and soybeans treated with cobalt.
JPNUDS. Blaylock, A.D. Jolley, V.D.; Brown, J.C.; Davis, T.D.; Walser, R.H. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. 1985. v. 8 (2). p. 163-176. Includes 29 references. (NAL Call No.: DNAL QK867.J67).

1042

Manganese toxicity in tomato plants: effects on cation uptake and distribution.
JPNUDS. Le Bot, J. Kirby, E.A.; Van Beusichem, M.L. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. 1990. v. 13 (5). p. 513-525. Includes references. (NAL Call No.: DNAL QK867.J67).

1043

Mechanisms of Fe-deficiency tolerance in crop cultivars: effects of dibutyl phthalate and caffeic acid on Fe-chlorosis recovery.
JPNUDS. Kannan, S. Ramani, S. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. Paper presented at the "Tenth International Plant Nutrition Colloquium," August 4-9, 1986, Beltsville, Maryland. 1987. v. 10 (9116). p. 1051-1058. ill. Includes references. (NAL Call

No.: DNAL QK867.J67).

1044

Plants can utilize iron from Fe-N,N'-DI-(2-hydroxybenzoyl)-ethylenediamine--N,N'-diacetic acid, a ferric chelate with 10(6) greater formation constant than Fe-EDDHA.
JPNUDS. Chaney, R.L. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. Paper presented at the "Fourth International Symposium on Iron Nutrition and Interactions in Plants," July 6-9, 1987, University of New Mexico, Albuquerque. June/Nov 1988. v. 11 (6/11). p. 1033-1050. ill. Includes references. (NAL Call No.: DNAL QK867.J67).

1045

Potassium effect on iron stress in tomato. I. The effect on pH, Fe-reductase and chlorophyll.
JPNUDS. Szlek, M. Miller, G.W.; Welkie, G.W. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. 1990. v. 13 (2). p. 215-229. ill. Includes references. (NAL Call No.: DNAL QK867.J67).

1046

Riboflavin excretion from roots of iron-stressed and reciprocally grafted tobacco and tomato plants.
JPNUDS. Welkie, G.W. Miller, G.W. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. Paper presented at the "Fourth International Symposium on Iron Nutrition and Interactions in Plants," July 6-9, 1987, University of New Mexico, Albuquerque. June/Nov 1988. v. 11 (6/11). p. 691-700. Includes references. (NAL Call No.: DNAL QK867.J67).

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A role for potassium in the use of iron by plants.
JPNUDS. Jolley, V.D. Brown, J.C.; Blaylock, M.J.; Camp, S.D. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. Paper presented at the "Fourth International Symposium on Iron Nutrition and Interactions in Plants," July 6-9, 1987, University of New Mexico, Albuquerque. June/Nov 1988. v. 11 (6/11). p. 1159-1175. Includes references. (NAL Call No.: DNAL QK867.J67).

1048

Tomato (Lycopersicon esculentum) disorder: blossom end rot.
Stevenson, Walter R. Heimann, Mary Francis.& Urban phytonarian series. 1981. This publication discusses the symptoms and control of blossom end rot. Document available from: Agricultural Bulletin Bldg., 1535 Observatory Drive, University of Wisconsin, Madison, Wisconsin 53706. 1 sheet : ill. (NAL Call No.: A2607).

1049

Transformation of tobacco, tomato, potato, and Arabidopsis thaliana using a binary Ti vector system.
PLPHA. An, G. Watson, B.D.; Chiang, C.C. Rockville, Md. : American Society of Plant Physiologists. Plant physiology. May 1986. v. 81 (1). p. 301-305. ill. Includes 24 references. (NAL Call No.: DNAL 450 P692).

1050

Activated carbon for safening peppers (Capsicum annuum L.) in soils treated with metribuzin.
WEESA6. Majek, B.A. Champaign, Ill. : Weed Science Society of America. Weed science. May 1986. v. 34 (3). p. 467-470. Includes references. (NAL Call No.: DNAL 79.8 W41).

1051

Activated carbon protects direct-seeded tomatoes from partially selective herbicides (Metribuzin, diphenamid).
Romanowski, R.R. Alexandria, Va., The Society. Journal of the American Society for Horticultural Science. Jan 1982. v. 107 (1). p. 27-30. ill. Includes 13 ref. (NAL Call No.: 81 S012).

1052

Air pollution causes moderate damage to tomatoes.
CAGRA. Temple, P.J. Surano, K.A.; Mutters, R.G.; Bingham, G.E.; Shinn, J.H. Berkeley, Calif. : The Station. California agriculture - California Agricultural Experiment Station. Mar/Apr 1985. v. 39 (3/4). p. 20-22. ill. (NAL Call No.: DNAL 100 C12CAG).

1053

Allelopathic effects of Lycopodium flabelliforme sporophytes (Effects on tomato and radishes).
Macuszek, J.M. Zimmerman, U.D.; Ebinger, J.E. Springfield, Ill., The Academy. Transactions of the Illinois State Academy of Science. 1980. v. 73 (1). p. 92-97. 10 ref. (NAL Call No.: 500 IL6).

1054

Allelopathic effects of soil incorporated asparagus roots on lettuce, tomato, and asparagus seedling emergence.
HJHSA. Shafer, W.E. Garrison, S.A. Alexandria, Va. : American Society for Horticultural Science. HortScience. Feb 1986. v. 21 (1,section 1). p. 82-84. Includes references. (NAL Call No.: DNAL SB1.H6).

1055

Alternation by high temperature of auxin and gibberellin concentrations in the floral buds, flowers, and young fruit of tomato.
HJHSA. Kuo, C.G. Tsai, C.T. Alexandria, Va. : American Society for Horticultural Science. HortScience. Dec 1984. v. 19 (6). p. 870-872. Includes 18 references. (NAL Call No.: DNAL SB1.H6).

1056

Ammonium and nitrate concentrations as factors in tomato growth and nutrient uptake.
JPNUDS. Wilcox, G.E. Magalhaes, J.R.; Silva, F.L.T.M. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. 1985. v. 8 (11). p. 989-998. Includes 19 references. (NAL Call No.: DNAL QK867.J67).

1057

Ammonium toxicity development in tomato plants relative to nitrogen form and light intensity.
JPNUDS. Magalhaes, J.R. Wilcox, G.E. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. 1984. v. 7 (10). p. 1477-1496. ill. Includes 24 references. (NAL Call No.: DNAL QK867.J67).

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Antitranspirants as a selection technique for crack-resistance in tomato.
Phelps, E. Morelock, T. Fayetteville, Ark. : Arkansas State Horticultural Society. Proceedings of the ... annual meeting - Arkansas State Horticultural Society. Paper presented at the "106th Annual Meeting of the Arkansas State Horticultural Society," November 13 and 14, 1985, Fort Smith, Arkansas. 1985. (106). p. 47-49. (NAL Call No.: DNAL SB21.A7A7).

1059

Assessment of bentazon tolerance in pepper (Capsicum sp.).
WETEE9. Harrison, H.F. Jr. Fery, R.L. Champaign, Ill. : The Society. Weed technology : a journal of the Weed Science Society of America. Apr/June 1989. v. 3 (2). p. 307-312. Includes references. (NAL Call No.: DNAL SB610.W39).

1060

Bentazon selectivity in hot pepper (Capsicum chinense) and sweet pepper (Capiscum annuum) (Phytotoxicity tolerance, postemergence herbicide).
Baltazar, A.M. Monaco, T.J.; Peele, D.M. Champaign : Weed Science Society of America. Weed science. Mar 1984. v. 32 (2). p. 243-246. Includes references. (NAL Call No.: 79.8 W41).

1061

Blossom drop and other problems of tomatoes and peppers.
Johnson, W.B. New Brunswick, N.J. : The Service. FS - Cooperative Extension Service, Cook College. 1984. (009). 2 p. Includes references. (NAL Call No.: DNAL S544.3.N5F7).

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Broadleaf weed control in peppers with herbicides applied pre-transplant.
JAUPA. Semidey, N. Caraballo, E.; Acin, N. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Jan 1989. v. 73 (1). p. 67-73. Includes references. (NAL Call No.: DNAL 8 P832J).

1063

Chemical weed control programs for selected vegetables on clear plastic mulches.
Gorske, S.F. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1981. (16th). p. 142-148. Includes references. (NAL Call No.: ONAL 309.9 N216).

1064

Chilling injury and electrolyte leakage in fruit of different tomato cultivars (Lycopersicon esculentum, postharvest).
King, M.M.JOSHB. Ludford, P.M. Alexandria : The Society. Journal of the American Society for Horticultural Science. Jan 1983. v. 108 (1). p. 74-77. ill. Includes references. (NAL Call No.: 81 SO12).

1065

Chilling sensitivity of tomato fruit in relation to ripening and senescence.
JOSHB. Autio, W.R. Bramlage, W.J. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Mar 1986. v. 111 (2). p. 201-204. Includes 29 references. (NAL Call No.: ONAL 81 SO12).

1066

Combinations of metribuzin and post-emergence grass herbicides for weed control in transplanted tomatoes.
PNWSB. Lindgren, C.B. Ashley, R.A. Beltsville, Md. : The Society. Proceedings of the ... annual meeting - Northeastern Weed Science Society. 1985. v. 39. p. 159-162. (NAL Call No.: DNAL 79.9 N814).

1067

Combined effects of peroxyacetyl nitrate and ozone on growth of four tomato cultivars.
JEVQAA. Temple, P.J. Taylor, O.C. Madison, Wis. : American Society of Agronomy. Journal of environmental quality. July/Sept 1985. v. 14 (3). p. 420-424. Includes references. (NAL Call No.: ONAL QH540.J6).

1068

Comparative effects of black walnut toxicity on tomatoes, potatoes and peppers.
MacOaniels, L.H.NONGA. Pratt, A. Hamden : The Association. Annual report - Northern Nut Growers Association. 1982. 1982. (73rd). p. 57-62. ill. Includes references. (NAL Call No.: 94.69 N81).

1069

Compatibility evaluation of various foliar spray combinations on pepper.
Cox, R.S. Nelson, L.A. s.l. : The Society. Proceedings of the ... annual meeting of the Florida State Horticulture Society. June 1985. v. 97. p. 187-190. (NAL Call No.: ONAL SB319.2.F6F56).

1070

Copper toxicity in tomato plants.
JEVQAA. Rhoads, F.M. Olson, S.M.; Manning, A. Madison, Wis. : American Society of Agronomy. Copper (Cu)-containing fungicides and bactericides are used extensively for disease control on staked tomatoes (Lycopersicon esculentum Mill.) in North Florida. Since Cu moves very little in most soils, the potential for Cu buildup in tomato fields is substantial over a period of continuous tomato culture. The purpose of this research was to determine the Cu levels of soil and plant tissue, which are associated with reduced growth, and the influence of soil acidity on Cu uptake and growth response of tomatoes to soil Cu. Tomato plants were grown for approximately 6 wk in a greenhouse in pots of soil (Typic Paleudult) containing two levels of calcitic lime and six levels of copper hydroxide in a factorial treatment arrangement. Lime levels were 0 and 3.5 g kg-1 in Experiment 1 and 0 and 7.0 g kg-1 in Experiment 2. Copper levels were 0, 175, 350, 700, 1400, and 2800 mg kg-1 in Experiment 1 and 0, 44, 88, 175, 350, and 700 mg kg-1 in Experiment 2. Tissue-Cu concentration was not a conclusive indicator of Cu toxicity in tomatoes. Soil pH and Mehlich 1-extractable Cu provided sufficient information for determining if soil-cu levels were reducing plant growth. Near-maximum Cu concentration in tomato tissue occurred at soil-Cu levels above 104 mg kg-1. Plant growth was reduced with soil-Cu levels above 150 mg kg-1 and soil pH below 6.5. However, soil-Cu levels above 330 mg kg-1 were necessary to reduce plant growth with soil pH above 6.5. Journal of environmental quality. Apr/June 1989. v. 18 (2). P. 195-197. Includes references. (NAL Call No.: ONAL QH540.J6).

1071

Cyclic cold stresses before transplanting influence tomato seedling growth, but not fruit earliness, fresh-market yield, or quality.
JOSHB. Dufault, R.J. Melton, R.R. Alexandria, Va. : The Society. Tomato seedlings (Lycopersicon esculentum Mill. 'Sunny') were exposed to cyclic cold stress at 2 +/- 1C, then to 29 +/- 6C in a greenhouse before being transplanted to the field. Cold-stressed seedlings were transplanted when the risk of ambient cold stress was negligible. In the first year of a 2-year study, transplants were exposed to 2C for 3, 6, or 12 hours for 1, 3, or 6 days before field planting. In the second year, transplants were exposed to 2C for 6, 12, or 18 hours for 4, 7, or 10 days before field planting. In the first year, cold stress generally stimulated increases in seedling height, leaf area, and shoot and root dry weights but decreased chlorophyll content. In the second year, all seedling growth characteristics except leaf area and plant height were diminished in response to longer cold-stress treatment. In both years, earliness, total productivity, and quality were unaffected by any stress treatment. Therefore, cold stress occurring before transplanting has a negligible effect on earliness, yield, or quality. Journal of the American Society for Horticultural Science. July 1990. v. 115 (4). p. 559-563. Includes references. (NAL Call No.: DNAL 81 SO12).

1072

Damage evaluation of machine harvested fresh market tomatoes.
Studer, H.E. Chen, P.; Kader, A.A. St. Joseph, Mich., The Society. Transactions of the ASAE - American Society of Agricultural Engineers. Mar/Apr 1981. v. 24 (2). p. 284-287. 2 ref. (NAL Call No.: 290.9 AM32T).

1073

Differential flood stress resistance of two tomato genotypes.
JOSHB. McNamara, S.T. Mitchell, C.A. Alexandria, Va. : The Society. Tomato accessions PI 128644 Lycopersicon peruvianum var. dentatum Mill.) and PI 406966 (L. esculentum Mill.) were identified in preliminary screening trials as being relatively nonresistant and resistant to root-zone flooding, respectively. A comparative study of these accessions was undertaken to examine adaptive responses to inundation. Root and shoot growth of both accessions were inhibited by 120 hr of flooding. Aerobic respiratory capacity of secondary roots of both accessions decreased to a similar extent after 24 hr of inundation. Flooding did not significantly affect anaerobic root respiration rate of either accession. Stomatal conductance decreased after 24 hr of flooding for both accessions, with some recovery by PI 406966 after 168 hr of treatment, coinciding with development of adventitious roots on lower stems. Few adventitious roots formed on flooded PI 128644 plants. Leaf water potential of both accessions initially increased as a result of flooding, but declined to near control level by 120 hr of treatment. Total phenol content of PI 128644 roots decreased with 72 hr of flooding, while that of PI 406966 roots was not significantly affected. Factors underlying the greater resistance of PI 406966 to flooding remain unclear, but may include a lower root respiratory requirement for O2 and greater ability to sequester or eliminate toxic substances during inundation. Journal of the American Society for Horticultural Science. Nov 1989. v. 114 (6). p. 976-980. Includes references. (NAL Call No.: DNAL 81 SO12).

1074

Differential tolerance of peppers (Capsicum annuum) to bentazon.
WETEE9. Wolff, D.W. Monaco, T.J.; Collins, W.W. Champaign, Ill. : The Society. Weed technology : a journal of the Weed Science Society of America. Oct/Dec 1989. v. 3 (4). p. 579-583. Includes references. (NAL Call No.: DNAL SB610.W39).

1075

Diurnal chilling sensitivity and desiccation in seedlings of tomato.
JOSHB. King, A.I. Reid, M.S. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Sept 1987. v. 112 (5). p. 821-824. Includes references. (NAL Call No.: DNAL 81 SO12).

1076

Effect of an antitranspirant, a foliar nutrient spray, and a cryoprotective polymer on supercooling and ice nucleation active bacteria in Hibiscus rosa-sinensis and Lycopersicon esculentum.
Hummel, R.L. Teets, T.M. s.l. : The Society. Proceedings of the ... annual meeting of the Florida State Horticulture Society. 1986 (pub. 1987). v. 99. p. 256-257. Includes references. (NAL Call No.: DNAL SB319.2.F6F56).

1077

Effect of ethylene action inhibitors upon wound-induced gene expression in tomato pericarp.
PLPHA. Henstrand, J.M. Handa, A.K. Rockville, Md. : American Society of Plant Physiologists. The contribution of wound-ethylene to wound-induced gene expression was investigated in unripe tomato pericarp using inhibitors of ethylene action. Wounded unripe tomato pericarp was treated with 2,5-norbornadiene or silver thiosulfate to inhibit specifically the induction of ethylene-dependent mRNA species. Poly(A)+ RNAs isolated from these tissues after

12 hours of wounding were translated in vitro in a rabbit reticulocyte lysate system and 35S methionine-labeled polypeptides were compared to unwounded controls after separation by one and two-dimensional polyacrylamide gel electrophoresis. Results show that mechanical wounding induces a dramatic shift in gene expression (over 50 mRNA species) but expression of less than 15% of these genes is affected by the treatment with ethylene action inhibitors. A selective decrease in mRNAs coding for a 37 kilodalton doublet and 75 kilodalton polypeptides is observed in 2,5-norbornadiene and silver thiosulfate treated wounded pericarp. Levels of hydroxyproline-rich glycoprotein mRNAs induced in wounded tissue were not influenced by inhibitors of ethylene action. Plant physiology. Sept 1989. v. 91 (1). p. 157-162. ill. Includes references. (NAL Call No.: DNAL 450 P692).

1078

Effect of excess boron on tomato yield, fruit size, and vegetative growth (Leaf injury).
Francois, L.E. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. May 1984. v. 109 (3). p. 322-324. ill. Includes references. (NAL Call No.: 81 SO12).

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Effect of gaseous hydrogen chloride on seed germination and early development of seedlings (Tomatoes, barley, injury, air pollution).
Granett, A.L. Taylor, O.C. Alexandria, Va., The Society. Journal of the American Society for Horticultural Science. July 1980. v. 105 (4). p. 548-550. 11 ref. (NAL Call No.: 81 SO12).

1080

Effect of nickel treatment on the growth of egg-plant.
JESEDU. Salim, R. Haddad, M.; El-Khatib, I. New York, N.Y. : Marcel Dekker. Journal of environmental science and health. Part A. Environmental science and engineering. 1988. v. 23 (4). p. 369-379. Includes references. (NAL Call No.: DNAL TD172.J6).

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Effect of nitrogen levels on metribuzin tolerance in tomatoes.
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WEESA6. Weston, L.A. Barrett, M. Champaign, Ill. : Weed Science Society of America. Pronounced differences in the tolerance of tomatoes and bell peppers to clomazone observed in field studies were confirmed in a greenhouse experiment. In greenhouse studies, preemergence clomazone rates causing 50% visible injury on bell pepper and tomato seedlings 10 days after application were 9.4 and 0.1 kg/ha, respectively. Based on growth inhibition, bell peppers were 40-fold more tolerant of clomazone than tomatoes 20 days after clomazone application. In laboratory studies investigating the basis for differential clomazone tolerance, no differences in uptake of 14C-clomazone from nutrient solutions between tomato and bell pepper plants were observed after 24 h. Minor differences were observed in the distribution of 14C label within plants; a higher percentage of 14C was recovered in bell pepper roots than in tomato roots while the opposite was true for the shoots. Clomazone was metabolized to two products in roots of both bell peppers and tomatoes within 48 h after treatment. Tomato shoots were more active in converting clomazone to these metabolites than were tomato roots. Bell pepper roots converted more clomazone to metabolites than did tomato roots 24 h after treatment. However, by 72 h, differences in clomazone metabolite levels between species were negligible in both roots and shoots. Enzymatic and acid hydrolysis of soluble, polar clomazone metabolites indicated that these metabolites may be sugar conjugates of clomazone. Weed science. May 1989. v. 37 (3). p. 285-289. Includes references. (NAL Call No.: DNAL 79.8 W41).

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Tolerance of transplanted bell peppers (Capsicum annum) to clomazone and diethatyl applied preemergent.
AAREEZ. Weston, L.A. Jones, R.T. New York, N.Y. : Springer. Field experiments evaluated the efficacy of preemergence herbicides and herbicide combinations for annual weed control in bell peppers produced for processing. Trifluralin plus napropamide, diethatyl, diethatyl plus diphenamid, and clomazone were evaluated for full season weed control and phytotoxicity to bell pepper transplants. All chemicals were applied posttransplant except for trifluralin, which was preplant incorporated. Plots were rated for weed control and crop in jury 4 and 11 weeks after herbicide application. Diethatyl at 2.2 kg ai/ha (2.0 lb/A) amd diethatyl plus diphenamid at 3.4 and 3.7 kg ai/ha caused noticeable crop injury at 4 weeks after application in 1986. At 11 weeks, crop injury was not apparent in any treatment. Superior full season weed control was obtained by one application of clomazone at 1.7 kg ai/ha, or split applications of trifluralin followed by devrinol or diethatyl followed by diethatyl (2.2 kg ai/ha). Up to 90% greater yields of peppers were obtained from plots treated with herbicide(s) than from the cultivated controls. Yield responses of bell peppers were not significantly different among any herbicide treatments. Applied agricultural research. Winter 1990. v. 5 (1). p. 13-16. Includes references. (NAL Call No.: DNAL S539.5.A77).

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Tomato (Lycopersicon esculentum) tolerance to diphenyl ether herbicides applied postemergence.
WETEE9. Masiunas, J.B. Champaign, Ill. : The Society. Weed technology : a journal of the Weed Science Society of America. Oct/Dec 1989. v. 3 (4). p. 602-607. Includes references. (NAL Call No.: DNAL SB610.W39).

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Toxicity of the surfactant Nacconol to four decay-causing fungi of fresh-market tomatoes (Botrytis cinerea, Geotrichum candidum, Phytophthora parasitica, Rhizopus stolonifer, phytotoxicity).
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Transfer values to fruits of Li (lithium) in tomato and Cd (cadmium) in bush beans (Pollution, metals, phytotoxicity).
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JCECD. Bradow, J.M. Connick, W.J. Jr. New York, N.Y. : Plenum Press. Journal of chemical ecology. July 1988. v. 14 (7). p. 1617-1631. Includes references. (NAL Call No.: DNAL QD415.A1J6).

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Sherman, M. Allen, J.J. S.l., The Society. Proceedings of the ... annual meeting of the Florida State Horticultural Society. 1981 (pub. 1982). v. 94. p. 283-284. ill. Includes 5 ref. (NAL Call No.: 81 F66).

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Bartz, J.A. St. Paul, Minn., American Phytopathological Society. Plant disease. Apr 1982. v. 66 (4). p. 302-306. Includes 8 ref. (NAL Call No.: 1.9 P69P).

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Tomato fruit rot infection cycle in a fresh market packing operation (Rhizopus stolonifer, Mucor hiemalis, Geotrichum candidum, Florida).
Sonoda, R.M. Hayslip, N.C.; Stoffella, P.J. S.l., The Society. Proceedings of the ... annual meeting of the Florida State Horticultural Society. 1981 (pub. 1982). v. 94. p. 281-282. Includes 6 ref. (NAL Call No.: 81 F66).

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Ultrastructural changes associated with chilling injury in mature-green tomato fruit.
JOSHB. Marangoni, A.G. Smith, A.K.; Yada, R.Y.; Stanley, D.W. Alexandria, Va. : The Society. The effect of low temperature on cell ultrastructure was investigated in chilling-sensitive and chilling-resistant tomato fruit (Lycopersicon esculentum Mill.) Damage to the chilling-sensitive cultivar included microvesiculation of the endoplasmic reticulum and loss of ribosomes, chloroplast, and mitochondrial swelling; loss of starch granules; disorganization of the internal lamellae of chloroplasts; grana unstacking, as well as plastoglobuli and tonoplast degradation. Only a slight disorganization of the internal chloroplast lamellae was evident in the resistant species after 7 days at 5C. The primary site of damage appeared to be the chloroplast in both chilling-sensitive and -resistant species. The ultrastructural damage observed could be explained in terms of membrane disruption. Journal of the American Society for Horticultural Science. Nov 1989. v. 114 (6). p. 958-962. ill. Includes references. (NAL Call No.: DNAL 81 SO12).

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Vanguard and Deccozil efficacy against postharvest rot of tomato, 1981 (Tomato (Lycopersicon esculentum 'Pik Red'), sour rot; Geotrichum candidum).
Burton, C.L. (s.l.), The Society. Fungicide and nematicide tests; results - American Phytopathological Society. 1982. v. 37. p. 83. (NAL Call No.: 464.9 AM31R).

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Southern green stink bug (Hemiptera: Pentatomidae) damage to fresh market tomatoes. JEENAI. Lye, B.H. Story, R.N.; Wright, V.L. Lanham, Md. : Entomological Society of America. Damage by southern green stink bug (SGSB), Nezara viridula (L.), to fresh market tomatoes, Lycopersicum esculentum Mill., was studied during 1983 and 1984. The effect of tomato fruit size and SGSB density and feeding duration on tomato circumference, weight, and days to maturity, as well as SGSB feeding frequency as indicated by the deposition of stylet sheaths, was quantified. Density and feeding duration had a significant effect on all four damage indices. Feeding frequency was influenced by density and feeding duration in a complex, nonadditive manner, but was not affected by fruit size. Most of the other relationships between infestation levels and the growth of tomatoes were linear, indicating that tomatoes would sustain a significant linear reduction in growth with incremental increases in SGSB density and feeding duration. The interactive effect of density and feeding duration was nonsignificant across all fruit damage indices. Feeding damage induced an early maturity of fruit and thereby reduced fruit size and weight. Journal of economic entomology. Feb 1988. v. 81 (1). p. 189-194. Includes references. (NAL Call No.: DNAL 421 J822).

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Allelochemicals from Palmer amaranth, Amaranthus palmeri S. Wats.
JCECD. Bradow, J.M. Connick, W.J. Jr. New York, N.Y. : Plenum Press. Journal of chemical ecology. Jan 1987. v. 13 (1). p. 185-202. Includes references. (NAL Call No.: DNAL QD415.A1J6).

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The basis of bentazon antagonism on sethoxydim absorption and activity.
WEESA6. Wanamarta, G. Penner, D.; Kells, J.J. Champaign, Ill. : Weed Science Society of America. The antagonistic effect of bentazon on sethoxydim adsorption and activity was studied in quackgrass. The diffusion of 14C-sethoxydim into and through an isolated tomato fruit cuticle was inhibited in the presence of the sodium salt of bentazon. Bentazon also increased the partitioning of 14C-sethoxydim into CH2Cl2 and water; however, it decreased partitioning into ethyl acetate. Removal of epicuticular wax from quackgrass leaf surfaces did not prevent the antagonism. Addition of sodium acetate or sodium bicarbonate to the sethoxydim spray solution at 10 mM reduced uptake of 14C-sethoxydim by quackgrass similar to the effect of bentazon. Sodium ions in the bentazon formulation appeared responsible for the antagonism by exchanging with the H+ of the sethoxydim hydoxyl group to form a more polar sodium salt of sethoxydim. The addition of Li+, K+, Cs+, Ca++, and Mg++ cations associated with a weak acid also reduced 14C-sethoxydim absorption. Addition of organic acids to the spray solution overcame the antagonism by preventing the formation of sodium salt of sethoxydim. In the field, the addition of a 3000 ppm sodium acetate solution delivering 0.56 kg/ha produced the same antagonism as bentazon on quackgrass control with sethoxydim. Weed science. May 1989. v. 37 (3). p. 400-404. Includes references. (NAL Call No.: DNAL 79.8 W41).

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Bentazon selectivity in hot pepper (Capsicum chinense) and sweet pepper (Capiscum annuum) (Phytotoxicity tolerance, postemergence herbicide).
Baltazar, A.M. Monaco, T.J.; Peele, D.M. Champaign : Weed Science Society of America. Weed science. Mar 1984. v. 32 (2). p. 243-246. Includes references. (NAL Call No.: 79.8 W41).

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Combinations of metribuzin and post-emergence grass herbicides for weed control in transplanted tomatoes.
PNWSB. Lindgren, C.B. Ashley, R.A. Beltsville, Md. : The Society. Proceedings of the ... annual meeting - Northeastern Weed Science Society. 1985. v. 39. p. 159-162. (NAL Call No.: DNAL 79.9 N814).

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Sanders, D.C. Averre, C.W.; Sorensen, K.A.; Estes, E.A.; Beasley, E.O.; Bonanno, A.R. Raleigh, N.C. : The Service. AG - North Carolina Agricultural Extension Service, North Carolina State University. June 1988. (387). 16 p. ill., maps, , plates. (NAL Call No.: DNAL S544.3.N6N62).

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McSorley, R. McMillan, R.T.; Parrado, J.L. s.l. : The Society. Proceedings of the ... annual meeting of the Florida State Horticulture Society. 1986 (pub. 1987). v. 99. p. 350-353. Includes references. (NAL Call No.: DNAL SB319.2.F6F56).

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Comparative host suitability of bell pepper and selected weed species for Liriomyza trifolii (Burgess).
SENTD. Chandler, L.D. Chandler, J.M. College Station, Tex. : Southwestern Entomological Society. The Southwestern entomologist. June 1988. v. 13 (2). p. 137-146. Includes references. (NAL Call No.: DNAL QL461.S65).

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Control of resistant weeds in tomatoes hairy and black nightshade, dodder and yellow nutsedge (Solanum nigrum, Solanum dulcamara, Cuscuta, Cyperus esculentus).
Orr, J.P. Sacramento, Ca., California Weed Conference Office. Proceedings - California Weed Conference. p. 56-57. (NAL Call No.: 79.9 C122).

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PNWSB. Majek, B.A. Beltsville, Md. : The Society. Proceedings of the ... annual meeting - Northeastern Weed Science Society. Jan 1984. v. 38. p. 125-128. Includes 7 references. (NAL Call No.: DNAL 79.9 N814).

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WEESA6. Majek, B.A. Johnston, S.A. Champaign, Ill. : Weed Science Society of America. Weed science. July 1986. v. 34 (4). p. 569-571. Includes 7 references. (NAL Call No.: DNAL 79.8 W41).

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Durability and efficiency of photodegradable mulches in drip-irrigated vegetable production systems.
Clough, G.H. Reed, G.L. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1989. (21st). p. 42-46. Includes references. (NAL Call No.: DNAL 309.9 N216).

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Eastern black nightshade (Solanum ptycanthum) interference in processing tomato (Lycopersicon esculentum).
WEESA6. Perez, F.G.M. Masiunas, J.B. Champaign, Ill. : Weed Science Society of America. In replacement experiments in the greenhouse, plant relative yield (PRY) of both eastern black nightshade and tomato increased as the proportion of nightshade plants increased in the pots, indicating that nightshade is less competitive than tomato. In field studies tomato yield was reduced by two-thirds if three nightshade plants m-1 of row were allowed to grow with tomato more than 6 weeks following tomato establishment. The percent marketable fruit decreased linearly from 73% with no nightshade to 49% when nightshade were present for 12 weeks. When nightshade and tomato were transplanted together, tomato yield was 9000 kg ha-1 and 49% of the fruit was marketable, while tomato yields were 30 000 kg ha-1 and 70% of the fruit was marketable when nightshade was established 9 weeks after tomato planting. Weed science. July/Sept 1990. v. 38 (4/5). p. 385-388. Includes references. (NAL Call No.: DNAL 79.8 W41).

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Effect of herbicides applied to corn on subsequent tomato, pepper, and cucumer crops (Florida).
Everett, P.H. Kalmbacher, R.S.; Chambliss, C.; Teem, D.H. n.p., The Society. Proceedings - Soil and Crop Science Society of Florida. 1980. v. 39. p. 122-125. 12 ref. (NAL Call No.: 56.9 S032).

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Effect of light on the response of tomato (Lycopersicon esculentum) and two weed species (jimsonweed Datura stramonium, velvetleaf, Abutilon theophrasti).
Pritchard, M.K. Warren, G.F. Champaign, Ill., Weed Science Society of America. Weed science. Mar 1980. v. 28 (2). p. 186-189. ill. 16 ref. (NAL Call No.: 79.8 W41).

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Effect of Temik 15G on root-knot nematodes, Verticillium wilt, nutsedge population, and yield of tomato, 1981 (Meloidogyne incognita, Verticillium albo-atrum, Cyperus rotundus, Lycopersicon esculentum).
Overman, A.J.FNETD. (s.l.) : The Society. Fungicide and nematicide tests : results - American Phytopathological Society. 1983. v. 38. p. 19. (NAL Call No.: 464.9 AM31R).

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Jacobsohn, R. Kelman, Y. Champaign, Ill., Weed Science Society of America. Weed science. Nov 1980. v. 28 (6). p. 692-699. ill. 18 ref. (NAL Call No.: 79.8 W41).

1217

Effects of barnyardgrass (Echinochloa crus-galli) on growth, yield, and nutrient status of transplanted tomato (Lycopersicon esculentum).
WEESA6. Bhowmik, P.C. Reddy, K.N. Champaign, Ill. : Weed Science Society of America. Field studies were conducted to determine the effects of various barnyardgrass populations on growth, yield, and nutrient concentration of transplanted 'Jetstar' tomato. Barnyardgrass densities at 16, 32, and 64 plants/m tomato row were tested in 1982 and 1983. Barnyardgrass shoot fresh weights/unit area increased as density increased. Fresh weight of barnyardgrass shoots ranged from 17 100 kg/ha at 16 plants/m of row to 35 500 kg/ha at 64 plants/m of row. At the vegetative stage, tomato shoot dry weight was unaffected by barnyardgrass. As crop growth progressed, tomato shoot dry weight decreased at all barnyardgrass densities. Season-long interference of barnyardgrass reduced marketable tomato fruit number and fruit weight at all densities compared to weed-free plots. Reductions in marketable fruit weight ranged from 26% to 16 plants/m row to 84% at 64 plants/m row. In 1982, concentrations of N, P, K, Ca, and Mg in tomato shoots were unaffected by season-long interference of barnyardgrass at all densitites. However, in 1983, concentrations of N and K decreased and concentration of P increased in tomato leaves as the density of barnyardgrass increased. Concentrations of Ca and Mg in tomato leaves were unaltered by barnyardgrass density. Weed science. Nov 1988. v. 36 (6). p. 775-778. Includes references. (NAL Call No.: DNAL 79.8 W41).

1218

Effects of phenolic acids and ragweed parthenium (Parthenium hysterophorus) extracts on tomato (Lycopersicon esculentum) growth and nutrient and chlorophyll content.
WEESA6. Mersie, W. Singh, M. Champaign, Ill. : Weed Science Society of America. Abstract: The effects of caffeic, vanillic, p-coumaric, chlorogenic, and ferulic acids, ragweed parthenium (Parthenium hysterophorus L. ~ PTNHY) residue and extracts on the growth, ion uptake, and chlorophyll content of 3-week-old tomatoes (Lycopersicon esculentum Mill. 'Walter') grown in the greenhouse were determined. Vanillic, p-coumaric, chlorogenic, and ferulic acid at 10(-3) M and parthenium extract at 0.5% (w/v) significantly reduced tomato root and shoot dry weight. Ragweed parthenium residue at 0.5% (w/w) and extract at 0.5% (w/v) significantly reduced tomato and shoot dry weight. Leaf nitrogen content was reduced by phenolic acids at (10(-3)M) and ragweed parthenium extract (0.5%). Phosphorus content was reduced by allphenolic acids at 10(-3) M and ragweed parthenium extract at 0.5% (w/v). In addition, p-coumaric and ferulic acids at 10(-4) M reduced phosphorus content. No consistent relationship between chlorophyll content and tomato growth reduction was observed. Weed science. May 1988. v. 36 (3). p. 278-281. Includes references. (NAL Call No.: DNAL 79.8 W41).

1219

Eggplant (Solanum melongena L.) transplants and exudates from roots of seven weeds.
JAUPA. Almodovar-Vega, L. Guzman-Perez, C.D.; Semidey-Laracuente, N. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. July 1988. v. 72 (3). p. 495-497. ill. Includes references. (NAL Call No.: DNAL 8 P832J).

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Environmental influences on the selectivity of diphenamid in seeded tomato (Lycopersicon esculentum) (Tolerance, injury).
Rice, R.P. Jr. Putnam, A.R. Champaign, Ill., Weed Science Society of America. Weed science. Mar 1980. v. 28 (2). p. 176-180. ill. 16 ref. (NAL Call No.: 79.8 W41).

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Estimating yield losses of tomatoes (Lycopersicon esculentum) caused by nightshade (Solanum spp.) interference.
WEESA6. Weaver, S.E. Smits, N.; Tan, C.S. Champaign, Ill. : Weed Science Society of America. Weed science. Mar 1987. v. 35 (2). p. 163-168. Includes references. (NAL Call No.: DNAL 79.8 W41).

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Evaluation of herbicide treatments for weed control in tomatoes.
TFHSA. Mullins, C.A. Coffey, D.L. Knoxville, Tenn. : The Station. Tennessee farm and home science - Tennessee Agricultural Experiment Station. Apr/June 1983. p. 6-8. Includes F900 references. (NAL Call No.: DNAL 100 T25F).

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Evaluation of herbicides for use between plastic mulch in cucurbit and solanaceous crop production.
Bonanno, A.R. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1986. (19th). p. 339-347. Includes references. (NAL Call No.: DNAL 309.9 N216).

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Evaluation of herbicides for weed control in tomato (Purple nutsedge, Cyperus rotundus, Florida).
Gilreath, J.P. S.l., The Society. Proceedings of the ... annual meeting of the Florida State Horticultural Society. 1981 (pub. 1982). v. 94. p. 129-131. Includes 2 ref. (NAL Call No.: 81 F66).

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Evaluation of preplant incorporated herbicides for direct seeded chili peppers.
Agamalian, H. S.l. : The Society. Research progress report - Western Society of Weed Science. 1988. p. 124-125. (NAL Call No.: DNAL 79.9 W52R).

1226

Evaluation of several preemergence herbicides for direct seeded bell peppers.
Agamalian, H. S.l. : The Society. Research progress report - Western Society of Weed Science. 1988. p. 122. (NAL Call No.: DNAL 79.9 W52R).

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Glyphosate on tomato and sweet pepper yields.
JAUPA. Semidey, N. Almodover, L. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Apr 1987. v. 71 (2). p. 235-237. (NAL Call No.: DNAL 8 P832J).

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Grass weed management in transplanted eggplant.
JAUPA. Semiday, N. Almodovar, L.; Caraballo, E. Rio Piedras, R.R. : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Apr 1990. v. 74 (2). p. 133-138. Includes references. (NAL Call No.: DNAL 8 P832J).

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Groundcherry control with and tomato tolerancse to ethalfluralin post applied treatments (Physalis lanceifolia, herbicides, California).
Reyes, C. Sacramento : California Weed Conference Office. Proceedings - California Weed Conference. 1982. 1982. (34th). p. 85-95. 2 ref. (NAL Call No.: 79.9 C122).

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Hairy nightshade and black nightshade control in canning tomatoes.
WSWPA. Orr, J.P. Miayo, G.; Mullen, R. Reno, Nev. : The Society. Proceedings - Western Society of Weed Science. Meeting held on March 13-16, 1989, Honolulu, Hawaii. 1989. v. 42. p. 243-245. (NAL Call No.: DNAL 79.9 W52).

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Herbicide evaluation in direct-seeded peppers for transplant production.
Glaze, N.C. AR-SO. Phatak, S.C. Auburn, Ala., The Society. Proceedings - Southern Weed Science Society. 1980. 1980. (33d). p. 96. ill. (NAL Call No.: 79.9 S08).

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Herbicide evaluation in direct-seeded peppers for transplant production (Yellow nutsedge, Cyperus esculentus, large crabgrass, Digitaria sanguinalis, Florida pusley, Richardia scabra).
Glaze, N.C. Phatak, S.C. Auburn, Ala., The Society. Proceedings - Southern Weed Science Society. 1981. 1981. (34th). p. 113-121. Includes 10 ref. (NAL Call No.: 79.9 S08).

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Herbicide evaluation in tomatoes (Metribuzin, Echinochloa crus-galli, Digitaria sanguinalis, Portulaca oleracea, Galinsoga ciliata).
Sanok, W.J. Sieczka, J.B.; Creighton, J.F. Beltsville, Md., The Society. Proceedings - annual meeting of the Northeastern Weed Science Society.Northeastern Weed Science Society. p. 160-162.p. 160-162. (NAL Call No.: 79.9 N814).

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Herbicide programs for peppers on clear plastic.
PNWSB. Bellinder, R.R. Warholic, D.T. Beltsville, Md. : The Society. Proceedings of the ... annual meeting - Northeastern Weed Science Society. 1987. v. 41. p. 134. (NAL Call No.: DNAL 79.9 N814).

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Herbicide trials on transplanted bell peppers at San Luis Obispo, California, 1980.
Gluhaich, P. Sacramento : California Weed Conference Office. Proceedings - California Weed Conference. 1981. 1981. (33rd). p. 97-103. ill. 6 ref. (NAL Call No.: 79.9 C122).

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Herbicides for field-transplanted cayenne hot peppers.
JMSSA. Igbokwe, P.E. Tiwari, S.C.; Collins, J.B.; Russell, L.C. Booneville, Miss. : The Academy. Journal of the Mississippi Academy of Sciences. 1988. v. 33. p. 97-106. Includes references. (NAL Call No.: DNAL 500 M697).

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Herbicides for transplanted bell peppers.
PNWSB. Beste, C.E. Beltsville, Md. : The Society. Proceedings of the ... annual meeting - Northeastern Weed Science Society. 1985. v. 39. p. 188-190. (NAL Call No.: DNAL 79.9 N814).

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Highly potent germination inhibitors in aqueous eluate of fruits of Bishop's weed (Ammi majus L.) and avoidance of autoinhibition (Anastatica hierochuntica, lettuce, tomato).
Friedman, J. Rushkin, E.; Waller, G.R. New York, Plenum Press. Journal of chemical ecology. Jan 1982. v. 8 (1). p. 55-65. ill. Includes 14 ref. (NAL Call No.: QD415.A1J6).

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Identification of volatile allelochemicals from Amaranthus palmeri S. Wats.
JCECD. Connick, W.J. Jr. Bradow, J.M.; Legendre, M.G.; Vail, S.L.; Menges, R.M. New York, N.Y. : Plenum Press. Journal of chemical ecology. Mar 1987. v. 13 (3). p. 463-472. Includes references. (NAL Call No.: DNAL QD415.A1J6).

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Influence of glyphosate and paraquat pre-transplant treatments on weed control and peppers yields.
JAUPA. Orengo-Santiago, E. Semidey, N.; Almodovar-Vega, L. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Jan 1987. v. 71 (1). p. 65-73. Includes references. (NAL Call No.: DNAL 8 P832J).

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Influence of surfactants and plant species of leaf retention of spray solutions.
WEESA6. Ruiter, H. de. Uffing, A.J.M.; Meinen, E.; Prins, A. Champaign, Ill. : Weed Science Society of America. Spray solutions containing a cationic or a nonionic surfactant were applied to six plant species at a broad range of concentrations. The species investigated were three weeds (black nightshade, chamomile, and quackgrass) and three crops (winter wheat, pea, and tomato). The microroughness of the leaf surface as revealed by scanning electron microscopy appeared to be a relevant retention-determining factor. Plant species with crystalline epicuticular waxes (winter wheat, pea, and quackgrass) retained much less spray solution than the other species, which are characterized by a smooth cuticular surface. The two surfactants enhanced retention on species with a reflective surface, whereas retention on black nightshade, chamomile, and tomato was hardly influenced by addition of surfactants. The two surfactants had a similar influence on the retention. Surfactant at 1% (wt/v) enhanced retention on pea, winter wheat, and quackgrass by factors of twenty, six, and four, respectively, compared with retention without surfactant. A linear relation between retention and logarithm of surfactant concentration was observed. Retention of spray drops was related not to equilibrium surface

tension of the spray solution but rather to dynamic surface tension. Weed science. Nov 1990. v. 38 (6). p. 567-572. ill. Includes references. (NAL Call No.: DNAL 79.8 W41).

1242

The influence of temperature and application time of day on the control of black nightshade and crop vigor in processing tomatoes.
WSWPA. Clement, L. Jessee, R.; Boyd, G. Reno, Nev. : The Society. Proceedings - Western Society of Weed Science. Meeting held on March 13-16, 1989, Honolulu, Hawaii.~ Includes statistical data. 1989. v. 42. p. 239-243. (NAL Call No.: DNAL 79.9 W52).

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Insect and weed interactions on bell poeppers (Capsicum annuum).
WETEE9. Frank, J.R. Schwartz, P.H. Jr.; Bourke, J.B. Champaign, Ill. : The Society. Weed technology : a journal of the Weed Science Society of America. Oct 1988. v. 2 (4). p. 423-428. Includes references. (NAL Call No.: DNAL SB610.W39).

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Integrated weed control programs for carrots and tomatoes.
Henne, R.C. Poulson, T.L. Beltsville, Md., The Society. Proceedings - annual meeting of the Northeastern Weed Science Society.Northeastern Weed Science Society. 1980. v. 34. p. 161-166. ill. 3 ref. (NAL Call No.: 79.9 N814).

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Integrated weed management in transplanted tomatoes and peppers under drip irrigation.
JAUPA. Liu, L.C. Antoni-Padilla, M.; Goyal, M.R.; Gonzalez-Ibanez, J. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Oct 1987. v. 71 (4). p. 349-358. Includes references. (NAL Call No.: DNAL 8 P832J).

1246

Interaction of cupric hydroxide, paraquat, and biotype of American black nightshade (Solanum americanum).
WEESA6. Bewick, T.A. Kostewicz, S.R.; Stall, W.M.; Shilling, D.G.; Smith, K. Champaign, Ill. : Weed Science Society of America. Experiments were conducted to determine the interaction between cupric hydroxide and paraquat on the control of American black nightshade. Three cupric hydroxide applications lowered paraquat toxicity with no further decrease in toxicity with six or nine cupric hydroxide applications when paraquat was applied 3 days after the last cupric hydroxide application. The interval between the last cupric hydroxide application and paraquat application was more important in decreasing paraquat toxicity than the number of cupric hydroxide applications. Three cupric hydroxide applications with a 10-day interval before paraquat application decreased paraquat toxicity less than three cupric hydroxide applications with a 3-day interval before paraquat application. Plants collected from three American black nightshade populations (Naples, Bradenton, and Gainesville) differed in their sensitivity to paraquat. I50 values, based on dry weight, showed Naples plants to be 12 times more tolerant to paraquat than Gainesville plants without cupric hydroxide, and 14 times more tolerant when cupric hydroxide was applied. More plants of the Naples biotype regrew from apical buds after paraquat treatment following cupric hydroxide application, and from axillary buds with paraquat but not cupric hydroxide treatment, than did the Bradenton biotype. Plants of the Gainesville biotype did not regrow after paraquat application, regardless of cupric hydroxide treatment. Weed science. Nov 1990. v. 38 (6). p. 634-638. Includes references. (NAL Call No.: DNAL 79.8 W41).

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Layby herbicides in processing tomatoes.
Drr, J.P. Stucki, L.F.; Mullen, R.J. S.l. : The Society. Research progress report - Western Society of Weed Science. 1988. p. 134. (NAL Call No.: DNAL 79.9 W52R).

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Layby herbicides in processing tomatoes.
Drr, J.P. Underwood, T. S.l. : Western Society of Weed Science. Research progress report - Western Society of Weed Science. 1987. p. 126-127. (NAL Call No.: DNAL 79.9 W52R).

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Layby herbicides in processing tomatoes.
Orr, J.P. Underwood, T. S.l. : Western Society of Weed Science. Research progress report - Western Society of Weed Science. 1987. p. 124-125. (NAL Call No.: DNAL 79.9 W52R).

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A layby-incorporated weed control trial in processing tomatoes.
Mullen, R.J. Drr, J.P.; Verdegaal, P. S.l. : The Society. Research progress report - Western Society of Weed Science. 1988. p. 133. (NAL Call No.: DNAL 79.9 W52R).

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Layby weed control in established chili peppers.
Agamalian, H. S.l. : The Society. Research progress report - Western Society of Weed Science. 1988. p. 128. (NAL Call No.: DNAL 79.9 W52R).

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Metham use in processing tomatoes: where does it fit?.
Mullen, R.J. Sacramento, Calif. : California Weed Conference Office. Proceedings - California Weed Conference. 1987. (39th). p. 157-160. (NAL Call No.: DNAL 79.9 C122).

1253

Napropamide (Devrinol) herbicide for tomatoes.
Wilson, H.P. VA. Norfolk, Va., The Service. The Vegetable growers news.Virginia Polytechnic Institute and State University. Cooperative Extension Service. Apr 1980. v. 34 (10). p. 3-4. (NAL Call No.: 275.28 V52).

1254

Napropamide, uptake, transport, and metabolism in corn (Zea mays) and tomato (Lycopersicon esculentum) (Herbicide, phytotoxicity).
Barrett, M. Ashton, F.M. Champaign, Ill., Weed Science Society of America. Weed science. Nov 1981. v. 29 (6). p. 697-703. ill. 10 ref. (NAL Call No.: 79.8 W41).

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Pest control in commercial tomato production.
Binning, L.K. Pellitteri, P.J.; Stevenson, W.R. Madison, Wis. : The Research Division. Publication - Cooperative Extension Programs. University of Wisconsin - Extension. Dec 1985. (A2351). 4 p. ill. (NAL Call No.: DNAL S544.3.W6W53).

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Pest control in commercial tomato production (Weeds, diseases and insects).
Binning, L.K. Wyman, J.A.; Stevenson, W.R. Madison, Wis. : The Programs. Publication - Cooperative Extension Programs. University of Wisconsin - Extension. Mar 1984. Mar 1984. (2351,rev.). 4 p. ill. (NAL Call No.: S544.3.W6W53).

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Pest control in commercial tomato production (Weeds, fungus diseases, insects).
Binning, L.K. Wyman, J.A.; Stevenson, W.R. Madison, Wis., The Programs. Publication - Cooperative Extension Programs, University of Wisconsin Extension. Apr 1981. Apr 1981. (A2351). 3 p. (NAL Call No.: S544.3.W6W53).

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Pest control in commercial tomato production (Weeds, insects, diseases).
Binning, L.K. Wyman, J.A.; Stevenson, W.R. Madison : The Programs. Publication - Cooperative Extension Programs. University of Wisconsin - Extension. 1983. 1983. (A2351). 4 p. (NAL Call No.: S544.3.W6W53).

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Plug planting for weed control (Processing tomatoes).
Razee, D. San Francisco, California Farmer Publishing Co. California farmer. July 12, 1980. v. 253 (1). p. 8, 13E ill. (NAL Call No.: S1.C185).

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A post-emergence trial for weed control in processing tomatoes.
Mullen, R.J. Smith, R.; Orr, J.P. S.l. : The Society. Research progress report - Western Society of Weed Science. 1988. p. 131-132. (NAL Call No.: DNAL 79.9 W52R).

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Postemergence black nightshade (Solanum nigrum L.) control with acifluorfen in canning tomatoes.
WSWPA. Orr, J. Mullen, R.; Clement, L. Reno : The Society. Proceedings - Western Society of Weed Science. Paper presented at the annual meeting of the Western Society of Weed Science, March 18-20, 1986, San Diego, California. 1986. v. 39. p. 40-43. (NAL Call No.: DNAL 79.9 W52).

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Postplant preemergent herbicide evaluations on chili peppers.
Agamalian, H. S.l. : The Society. Research progress report - Western Society of Weed Science. 1988. p. 126-127. (NAL Call No.: DNAL 79.9 W52R).

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A pre-plant, pre-emergence nightshade control trial in processing tomatoes comparing two methods of application of metam-sodium.
Mullen, R.J. Orr, J.P.; Smith, R.; Kontaxis, D.; Carlisle, A. S.l. : The Society. Research progress report - Western Society of Weed Science. 1988. p. 130. (NAL Call No.: DNAL 79.9 W52R).

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A pre-plant, pre-emergence weed control trial in processing tomatoes comparing different rates of metam-sodium applied as bladed treatments.
Orr, J.P. Mullen, R.J.; Miyao, G.; Verdegaal, P. S.l. : The Society. Research progress report - Western Society of Weed Science. 1988. p. 129. (NAL Call No.: DNAL 79.9 W52R).

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Reciprocal effects of EPTC, CDEC, and certain ions on their absorption by tomato (Lycopersicon esculentum) (Herbicides, residues, injuries).
Acosta-Nunez, S. Ashton, F.M. Champaign, Ill., Weed Science Society of America. Weed science. Nov 1981. v. 29 (6). p. 692-697. ill. 29 ref. (NAL Call No.: 79.8 W41).

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Research on black nightshade control in canning tomatoes.
Orr, J.P. Lange, A.H.; Mullen, R.J.; Kempen, H.; Clement, L.; Miyao, G. Sacramento, Calif. : California Weed Conference Office. Proceedings - California Weed Conference. 1984. 1984. (36th). p. 125-126. (NAL Call No.: 79.9 C122).

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Response of hairy nightshade and canning tomato variety Castle Rock 489G to postemergence applications of metribuzin.
Orr, J.P. S.l. : The Society. Research progress report - Western Society of Weed Science. Meeting held March 14-16, 1989, Honolulu, Hawaii. 1989. p. 180-182. (NAL Call No.: DNAL 79.9 W52R).

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Responses of susceptible and resistant species to napropamide (Herbicide, tomatoes, peppers).
Barrett, M. Sacramento, Ca., California Weed Conference Office. Proceedings - California Weed Conference. Presented at the 31st Annual California Weed Conference, January 15-18, 1979, Los Angeles, California. p. 25-29. ill. 3 ref. (NAL Call No.: 79.9 C122).

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Salinity effects of EPTC (S-ethyl dipropylthiocarbamate) and CDEC (2-chloroallyl diethyldithiocarbamate) in tomato (Lycopersicon esculentum) and lettuce (Lactuca sativa).
Acosta-Nunez, S. Ashton, F.M. Champaign, Ill., Weed Science Society of America. Weed science. Sept 1981. v. 29 (5). p. 548-552. ill. 24 ref. (NAL Call No.: 79.8 W41).

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Selective black nightshade control in tomatoes.
CAGRA. Lange, A.H. Orr, J.P.; Mullen, R.J.; Miayo, E.M.; Clement, L.D.; Edson, W.D. Berkeley : The Station. California agriculture - California Agricultural Experiment Station. Jan/Feb 1986. v. 40 (1/2). p. 26-27. ill. (NAL Call No.: DNAL 100 C12CAG).

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Selective herbicides to control grass seeds in transplanted tomatoes and peppers.
JAUPA. Liu, L.C. Goyal, M.R. Rio Piedras, R.R. : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. July 1989. v. 73 (3). p. 231-237. Includes references. (NAL Call No.: DNAL 8 P832J).

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Selective weed control in transplanted bell peppers.
Agamalian, H. S.l. : The Society. Research progress report - Western Society of Weed Science. 1988. p. 123. (NAL Call No.: DNAL 79.9 W52R).

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Soil fumigants for tomato production on Rockdale soils.
McSorley, R. McMillan, R.T. Jr.; Parrado, J.L. s.l. : The Society. Proceedings of the ... annual meeting of the Florida State Horticulture Society. 1986. v. 98. p. 232-237. Includes references. (NAL Call No.: DNAL SB319.2.F6F56).

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A surface-roller herbicide applicator for weed control in turf.
WETEE9. Welker, W.V. Jr. Peterson, D.L. Champaign, Ill. : The Society. Weed technology : a journal of the Weed Science Society of America. July/Sept 1989. v. 3 (3). p. 472-474. ill. Includes references. (NAL Call No.: DNAL SB610.W39).

1275

Synthesis and herbicidal properties of substituted 1,4-dihydro-1,2,4-benzotriazines.
JAFCAU. Waldrep, T.W. Rieder, B.J.; Thibault, T.D.; Canada, E.J. Washington, D.C. : American Chemical Society. A series of 1,4-dihydro-1,2,4-benzotriazines exhibits slight to moderate herbicidal activity in preemergence and postemergence tests. Postemergence applications of these benzotriazines at 4 lb/acre provided good control of large crabgrass, foxtail millet, redroot pigweed, wild mustard, and tomato, but no selectivity was observed among the various plant species. At 4 lb/acre preemergence, corn, wheat, rice, cotton, and soybean show tolerance, while large crabgrass, foxtail millet, redroot pigweed, common lambsquarters, velvetleaf, and jimsonweed were killed or severely injured. A total of 36 analogues was synthesized, and their herbicidal activities were determined to examine the structure-activity relationships. In general, we found that, among the variations investigated, cyano substitution on the benzo portion, small alkyl at the 1-position, and hydrogens at the 3- and 4-positions led to the most active herbicides. Journal of agricultural and food chemistry. Feb 1991. v. 39 (2). p. 392-395. Includes references. (NAL Call No.: DNAL 381 J8223).

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Tomato production and weed control in no-tillage versus conventional tillage.
JOSHB. Shelby, P.P. Jr. Coffey, D.L.; Rhodes, G.N. Jr.; Jeffery, L.S. Alexandria, Va. : The Society. Field studies were conducted in 1983 and 1984 to evaluate the feasibility of growing fresh-market tomatoes (Lycopersicon esculentum Mill. 'Floradade') in no-tillage or conventional tillage systems and to evaluate the efficacy of postemergence herbicides under both tillage systems. In 1983, marketable fruit yields in no-tillage were nearly twice those from conventional tillage. In 1984, there were no statistical differences in marketable yields among herbicide treatments or between tillage systems. Yields were higher in 1984 than in 1983, largely due to more favorable growing conditions. In both years, metribuzin provided good broadleaf weed control. In 1983, annual grasses were better controlled in no-tillage with a sequential metribuzin application for fluazifop following metribuzin than witn a single metribuzin application. Marketable yields were highest in plots where annual grasses were adequately controlled. Sequential metribuzin applications provided good broadleaf weed control and postemergence grass herbicides each provided excellent annual grass control in 1984. Chemical names used: (+/-)-2- 4- 5-(trifluoromethyl)-2-pyridinyl o-xy phenoxy propanoic acid (fluazifop); 4-amino-6-(1,1-diemthylethyl)-3-(methylthio)-1-,2,4-triazin-5(4H)-one (metribuzin). Journal of the American Society for Horticultural Science. Sept 1988. v. 113 (5). p. 675-678. Includes references. (NAL Call No.: DNAL 81 S012).

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Binning, L.K. WI. Wyman, J.A.; Stevenson, W.R. Madison, Wis., The Programs. Publication - Cooperative Extension Programs, University of Wisconsin Extension.Wisconsin. University. Cooperative Extension Programs. Jan 1980. Jan 1980. (A2351). 3 p. ill. (NAL Call No.: S544.3.W6W53).

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Transplant tomato herbicide study.
Hillyer, I. Kapusta, G. Carbondale, Ill., Southern Illinois University. AG reviewSouthern Illinois University. School of Agriculture. 1981. 1981. p. PLSS67-PLSS69. (NAL Call No.: S537.S5S6).

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Uptake, translocation, and metabolism of bentazon by two pepper species (Capiscum annuum and Capsicum chinense) (Herbicide tolerance, selectivity).
Baltazar, A.M. Monaco, T.J. Champaign : Weed Science Society of America. Weed science. Mar 1984. v. 32 (2). p. 258-263. ill. Includes references. (NAL Call No.: 79.8 W41).

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Weed control experiments in tomatoes--a three-year summary.
Sanok, W.J. Selleck, G.W.; Creighton, J.F. Beltsville, Md., The Society. Proceedings - annual meeting of the Northeastern Weed Science Society.Northeastern Weed Science Society. 1980. v. 34. p. 167-169. ill. 1 ref. (NAL Call No.: 79.9 N814).

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Weed control for eggplants grown on clear plastic mulch (Abstract only).
Gorske, S.F. Beltsville, Md., The Society. Proceedings - annual meeting of the Northeastern Weed Science Society.Northeastern Weed Science Society. p. 167-168.p. 167-168. (NAL Call No.: 79.9 N814).

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Weed control in direct-seeded tomato, Lycopersicon esculentum, for transplants.
WETEE9. Glaze, N.C. Champaign, Ill. : The Society. Weed technology : a journal of the Weed Science Society of America. July 1988. v. 2 (3). p. 333-337. Includes references. (NAL Call No.: DNAL SB610.W39).

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Weed control in tomato row middles.
Gilreath, J.P. Stall, W.M.; Locascio, S.J. S.l. : The Society. Proceedings of the ... annual meeting of the Florida State Horticulture Society. Aug 1988. v. 100. p. 232-236. Includes references. (NAL Call No.: DNAL SB319.2.F6F56).

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Weed control practices for tomatoes and peppers.
Mullen, R.J. Sacramento, Calif. : California Weed Conference Office. Proceedings - California Weed Conference. 1986. (38th). p. 86-97. (NAL Call No.: DNAL 79.9 C122).

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Quantitative analysis of organic phosphonates, phosphonate, and other inorganic anions in plants and soil by using high-performance ion chromatography.
PHYTAJ. Ouimette, D.G. Coffey, M.D. St. Paul, Minn. : American Phytopathological Society. The current analytical method for quantitation of the systemic fungicide aluminum tris-O-ethyl phosphonate (Aliette) and its anionic metabolite phosphonate (HPO3-2) in plants is extremely tedious and requires the use of both high-pressure liquid chromatography and gas-liquid chromatography. We report here a simple and improved method that employs high-performance ion chromatography, using eluent suppression and conductivity detection, to determine residues of ethyl, diethyl, and dimethyl phosphonate, as well as the inorganic anions HPO3-2, HPO4-2, NO3-, and SO4-2 in aqueous extracts of plants and soil. The method has proved sensitive, reproducible, and requires only simple sample preparation. Two types of column and eluent are employed, one for inorganic anions and the other for organic phosphonate compounds. The efficiency of aquenous extraction of ethyl phosphonate and HPO3-2 from plants is about 70%. Aqueous extraction efficiency of organic phosphonates from soil is 90%, whereas that of HPO3-2 using 0.5 M NaHCO3 is 85%. Under the conditions employed, the limits of detection of the organic phosphonates from plants and soil are 2.0 microgram/g and 5.0 microgram/g, respectively; those of HPO3-2 and other inoganic anions in plants and soil are 0.5 microgram/g and 0.2 microgram/g, respectively. Phytopathology. Sept 1988. v. 78 (9). p. 1150-1155. Includes references. (NAL Call No.: DNAL 464.8 P56).

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WEESA6. Bukovac, M.J. Petracek, P.D.; Fader, R.G.; Morse, R.D. Champaign, Ill. : Weed Science Society of America. Relevant data on the sorption of organic compounds by isolated plant cuticles are reviewed and discussed in relation to the foliar penetration process. The chemical properties and structure of plant cuticles favor sorption of lipophilic compounds and play an important role in the penetration of biologically active substances. With organic acid auxins 2,4-D and NAA, and methylene blue as molecular probes, concentration, pH, temperature, and surfactants were important factors affecting sorption. The constituent waxes of the cuticle markedly inhibit sorption of a wide range of organic compounds. Dctoxynol surfactants that have 5 or 7.5 polyoxyethylene groups interact with the epicuticular wax to enhance the sorption of NAA. At sorption equilibrium, the cuticle has a lower affinity for methylene blue in the region usually rich in cuticular waxes and in a narrow band in the cuticular pegs. Weed science. Paper presented at the "Symposium on Physiology, WSSA Annual Meeting," February 7, 1989, Dallas, Texas.~ Literature review. May 1990. v. 38 (3). p. 289-298. ill. Includes references. (NAL Call No.: DNAL 79.8 W41).

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Spraying and dusting tomatoes.
Jones, B.F. Johnson, D.R.; McDaniel, M.C.; Hirrel, M. Little Rock, Ark. : The Service. Leaflet EL - Arkansas University, Cooperative Extension Service. May 1986. (217). 12 p. (NAL Call No.: DNAL 275.29 AR4LE).

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Studies on octylphenoxy surfactants. Effects of concentration and mixtures on 2-(1-Naphthyl)acetic acid sorption by tomato fruit cuticles.
ACSMC. Shafer, W.E. Bukovac, M.J. Washington, D.C. : The Society. ACS Symposium series - American Chemical Society. 1988. (371). p. 34-43. Includes references. (NAL Call No.: DNAL QD1.A45).

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Symplastic entry and phloem translocation of phosphonate.
PCBPB. Duimette, D.G. Coffey, M.D. Duluth, Minn. : Academic Press. Pesticide biochemistry and physiology. Sept 1990. v. 38 (1). p. 18-25. Includes references. (NAL Call No.: DNAL SB951.P49).

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Synthesis and herbicidal properties of substituted 1,4-dihydro-1,2,4-benzotriazines.
JAFCAU. Waldrep, T.W. Rieder, B.J.; Thibault, T.D.; Canada, E.J. Washington, D.C. : American Chemical Society. A series of 1,4-dihydro-1,2,4-benzotriazines exhibits slight to moderate herbicidal activity in preemergence and postemergence tests. Postemergence applications of these benzotriazines at 4 lb/acre provided good control of large crabgrass, foxtail millet, redroot pigweed, wild mustard, and tomato, but no selectivity was observed among the various plant species. At 4 lb/acre preemergence, corn, wheat, rice, cotton, and soybean show tolerance, while large crabgrass, foxtail millet, redroot pigweed, common lambsquarters, velvetleaf, and jimsonweed were killed or severely injured. A total of 36 analogues was synthesized, and their herbicidal activities were determined to examine the structure-activity relationships. In general, we found that, among the variations investigated, cyano substitution on the benzo portion, small alkyl at the 1-position, and hydrogens at the 3- and 4-positions led to the most active herbicides. Journal of agricultural and food chemistry. Feb 1991. v. 39 (2). p. 392-395. Includes references. (NAL Call No.: DNAL 381 J8223).

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Tolerance of four vegetable crops to selected herbicides.
OARCB. Fakhra, Z.M. Gorski, S.F. Wooster, Ohio : The Center. Research circular - Ohio Agricultural Research and Development Center. Sept 1985. (288). p. 19-21. Includes references. (NAL Call No.: DNAL 100 OH3R).

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Tolerance of tomato (Lycopersicon esculentum) and bell pepper (Capsicum annuum) to clomazone.
WEESA6. Weston, L.A. Barrett, M. Champaign, Ill. : Weed Science Society of America. Pronounced differences in the tolerance of tomatoes and bell peppers to clomazone observed in field studies were confirmed in a greenhouse experiment. In greenhouse studies, preemergence clomazone rates causing 50% visible injury on bell pepper and tomato seedlings 10 days after application were 9.4 and 0.1 kg/ha, respectively. Based on growth inhibition, bell peppers were 40-fold more tolerant of clomazone than tomatoes 20 days after clomazone application. In laboratory studies investigating the basis for differential clomazone tolerance, no differences in uptake of 14C-clomazone from nutrient solutions between tomato and bell pepper plants were observed after 24 h. Minor differences were observed in the distribution of 14C label within plants; a higher percentage of 14C was recovered in bell pepper roots than in tomato roots while the opposite was true for the shoots. Clomazone was metabolized to two products in roots of both bell peppers and tomatoes within 48 h after treatment. Tomato shoots were more active in converting clomazone to these metabolites than were tomato roots. Bell pepper roots converted more clomazone to metabolites than did tomato roots 24 h after treatment. However, by 72 h, differences in clomazone metabolite levels between species were negligible in both roots and shoots. Enzymatic and acid hydrolysis of soluble, polar clomazone metabolites indicated that these metabolites may be sugar conjugates of clomazone. Weed science. May 1989. v. 37 (3). p. 285-289. Includes references. (NAL Call No.: DNAL 79.8 W41).

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Tolerance of transplanted bell peppers (Capsicum annum) to clomazone and diethatyl applied preemergent.
AAREEZ. Weston, L.A. Jones, R.T. New York, N.Y. : Springer. Field experiments evaluated the efficacy of preemergence herbicides and herbicide combinations for annual weed control in bell peppers produced for processing. Trifluralin plus napropamide, diethatyl, diethatyl plus diphenamid, and clomazone were evaluated for full season weed control and phytotoxicity to bell pepper transplants. All chemicals were applied posttransplant except for trifluralin, which was preplant incorporated. Plots were rated for weed control and crop in jury 4 and 11 weeks after herbicide application. Diethatyl at 2.2 kg ai/ha (2.0 lb/A) amd diethatyl plus diphenamid at 3.4 and 3.7 kg ai/ha caused noticeable crop injury at 4 weeks after application in 1986. At 11 weeks, crop injury was not apparent in any treatment. Superior full season weed control was obtained by one application of clomazone at 1.7 kg ai/ha, or split applications of trifluralin followed by devrinol or diethatyl followed by diethatyl (2.2 kg ai/ha). Up to 90% greater yields of peppers were obtained from plots treated with herbicide(s) than from the cultivated controls. Yield responses of bell peppers were not significantly different among any herbicide treatments. Applied agricultural research. Winter 1990. v. 5 (1). p. 13-16. Includes references. (NAL Call No.: DNAL S539.5.A77).

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Tomato (Lycopersicon esculentum) tolerance to diphenyl ether herbicides applied postemergence.
WETEE9. Masiunas, J.B. Champaign, Ill. : The Society. Weed technology : a journal of the Weed Science Society of America. Oct/Dec 1989. v. 3 (4). p. 602-607. Includes references. (NAL Call No.: DNAL SB610.W39).

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Two water-soluble optically resolvable dyes for comparing pesticide spray distribution.
JEENAI. Hayden, J. Ayers, G.; Grafius, E.; Hayden, N. Lanham, Md. : Entomological Society of America. A technique for studying pesticide deposit on natural targets using two optically resolvable water-soluble food dyes is described. Flolene FD&C Blue No. 1 and Flolene FD&C Yellow No. 6 can be retrieved from a natural surface (green pepper leaves) and subsequently resolved spectrophotometrically. The ability to resolve two dyes from a single leaf surface eliminates variability due to leaf surface orientation and position within the plant and allows precise comparison of different spray technologies. The system described has a detection limit of approximately 0.1 ppm. These dyes are safe, water-soluble, and inexpensive tools for research involving comparison and quantification of spray depositions. Journal of economic entomology. Dec 1990. v. 83 (6). p. 2411-2413. Includes references. (NAL Call No.: DNAL 421 J822).

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Use of an improved exudation method for the study of phloem mobility of pesticides.
Groussol, J. Delrot, S.; Houngbossa, S.; Caruhel, P.; Bonnemain, J.L. New York : Alan R. Liss. Plant biology. In the series analytic: Phloem Transport / edited by J. Cronshaw, W.J. Lucas and R.T. Giaquinta. Proceedings of an International Conference, August 18-23, 1985, Asilomar, California. 1986. v. 1. p. 619-626. Includes references. (NAL Call No.: DNAL QH301.P535).

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Use of plant cells and organ culture in the production of biological chemicals.
ACSMC. Flores, H.E. Washington, D.C. : The Society. ACS Symposium series - American Chemical Society. 1987. v. 334. p. 66-86. ill. Includes references. (NAL Call No.: DNAL QD1.A45).

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Zingiberene and resistance to Colorado potato beetle in Lycopersicon hirsutum f. hirsutum.
JAFCAU. Carter, C.D. Sacalis, J.N.; Gianfagna, T.J. Washington, D.C. : American Chemical Society. Journal of agricultural and food chemistry. Jan/Feb 1989. v. 37 (1). p. 206-210. Includes references. (NAL Call No.: DNAL 381 J8223).

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1979 pesticide use on Florida vegetables, a preliminary report.
Ferguson, W.L. McCalla, I.E. Washington, D.C., The Service. Extract: According to the 1979 Vegetable Pesticide Survey, nearly 4.6 million pounds of pesticides were used to control weeds, insects, diseases, and nematodes on six vegetable crops in Florida. The six vegetable crops included cabbage, celery, lettuce, sweet corn, tomatoes, and watermelon. About 4.6 million acre-treatments were made ranging from 2.2 million for tomatoes to 148,800 for cabbage. ERS staff report - U.S. Dept. of Agriculture, Economic Research Service. July 1981. Available from NTIS. July 1981. (AGESS810708). 23 p. 6 ref. (NAL Call No.: 916762(AGE)).

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1979 pesticide use on vegetables in the Northeast, a preliminary report.
Ferguson, W.L. McCalla, I.E. Washington, D.C., The Service. Extract: According to the U.S. Department of Agriculture's 1979 Vegetable Pesticide Survey, approximately 1.3 million pounds of pesticides were used to control weeds, insects, diseases and nematodes on 10 vegetable crops in New York and New Jersey. The 10 vegetable crops include cabbage, carrots, celery, cucumbers, green peas, lettuce, onions, snap beans, sweet corn, and tomatoes. Approximately 825,000 acre-treatments were made ranging from 262,000 for sweet corn to 700 for carrots. ERS staff report - U.S. Dept. of Agriculture, Economic Research Service. Dec 1981. Available from NTIS. Dec 1981. (AGES811218). 37 ref. 7 ref. (NAL Call No.: 916762(AGE)).

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1979 pesticide use on vegetables in the Southeast, a preliminary report.
Ferguson, W.L. McCalla, I.E. Washington, D.C., The Service. Extract: In this report, patterns of pesticide use in the Southeast (North Carolina, South Carolina, and Georgia) in 1979 are discussed for cabbage, cantaloups, cucumbers, snap beans, sweet corn, tomatoes, and watermelons. Survey data were collected on quantities of pesticides used, acres treated, acre-treatments, number of applications, annual rates, and rate per acre-treatment. This report provides information useful to policymakers, researchers, extension specialists, and industry personnel. ERS staff report - U.S. Dept. of Agriculture, Economic Research Service. Oct 1981. Available from NTIS. Oct 1981. (AGES811029). 32 p. 11 ref. (NAL Call No.: 916762(AGE)).

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1979 pesticide use on vegetables in the Southwest, a preliminary report.
Ferguson, W.L. McCalla, I.E. Washington, D.C., The Service. Abstract: According to U.S. Department of Agriculture's 1979 Vegetable Pesticide Survey, about 1.7 million pounds of pesticides were used to control weeds, insects, diseases, and nematodes on 10 vegetable crops in Arizona, Colorado, and Texas. The 10 vegetable crops included cabbage, cantaloups, carrots, cucumbers, lettuce, onions, snap beans, sweet corn, tomatoes, and watermelons. Nearly 1.1 million acre-treatments were made ranging from about 284,000 for onions to 4,000 for cucumbers and snap beans. ERS staff report - U.S. Dept. of Agriculture, Economic Research Service. Dec 1981. Available from NTIS - order no. PB82-166-885. Dec 1981. (AGES811221). 45 p. 7 ref. (NAL Call No.: 916762(AGE)).

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Shoemaker, P.B. Walgenbach, J.F.; Monks, D.W. Raleigh, N.C. : The Service. AG - North Carolina Agricultural Extension Service, North Carolina State University. Feb 1990. (405s). 15 p. ill. (NAL Call No.: DNAL S544.3.N6N62).

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Fate of maneb and zineb fungicides in microagroecosystem chambers (Residues, soil, tomato fruits and leaves).
Nash, R.G. AR-BARC. Beall, M.L. Jr. Washington, D.C., American Chemical Society. Journal of agricultural and food chemistry. Mar/Apr 1980. v. 28 (2). p. 322-330. ill. 20 ref. (NAL Call No.: 381 J8223).

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Tomato production and soil pest control in relation to width of fumigated and mulched bed and soil fumigation rate.
Jaworski, C.A. Phatak, S.C.; Johnson, A.W.; McCarter, S.M. Alexandria, Va., American Society for Horticultural Science. HortScience. Oct 1981. v. 16 (5). p. 667-669. 17 ref. (NAL Call No.: SB1.H6).

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Effects of sulfur dioxide fumigation in open-top field chambers on soil acidification and exchangeable aluminum (Tomato, Lycopersicum esculentum, acid rain, air pollution).
Lee, E.H. Heggestad, H.E.; Bennett, J.H. Madison, Wis., American Society of Agronomy. Journal of environmental quality. Jan/Mar 1982. v. 11 (1). p. 99-102. ill. 26 ref. (NAL Call No.: QH540.J6).

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The effects of waterbanded metham in different soil temperatures with direct seeded and transplant tomatoes.
Edson, W.D. Lange, A.H. Sacramento, Calif. : California Weed Conference Office. Proceedings - California Weed Conference. 1987. (39th). p. 31-32. (NAL Call No.: DNAL 79.9 C122).

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Interactions between polymer soil conditioners and organic amendments in the improvement of physical properties of soil.
JPNUDS. Wallace, A. Wallace, G.A. New York, N.Y. : Marcel Dekker. Journal of plant nutrition. Paper published in "Interactions of Limiting Factors in Crop Production", a special issue devoted to research papers by Dr. Arthur Wallace. 1990. v. 13 (3/4). p. 437-450. Includes references. (NAL Call No.: DNAL QK867.J67).

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Spent mushroom compost in soilless media and its effects on the yield and quality of transplants (Lettuce, tomatoes, cucumbers, Tagetes patula).
Lohr, V.I. O'Brien, R.G.; Coffey, D.L. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Sept 1984. v. 109 (5). p. 693-697. Includes 23 references. (NAL Call No.: 81 SO12).

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Yield and plant nutrient content of vegetables trickle-irrigated with municipal wastewater.
HJHSA. Neilsen, G.H. Stevenson, D.S.; Fitzpatrick, J.J.; Brownlee, C.H. Alexandria, Va. : American Society for Horticultural Science. HortScience. Apr 1989. v. 24 (2). p. 249-252. Includes references. (NAL Call No.: DNAL SB1.H6).

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Yield response of watermelon, tomato and pigeon pea to land preparation techniques in southern Puerto Rico.
JAUPA. Lugo-Mercado, H.M. Badillo-Feliciano, J.; Ortiz-Alvarado, F.H. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Apr 1987. v. 71 (2). p. 203-208. Includes references. (NAL Call No.: DNAL 8 P832J).

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NMTPA. Rodriguez-Kabana, R. Boube, D.; Young, R.W. Auburn, Ala. : Drganization of Tropical American Nematologists. Nematropica. Dec 1990. v. 20 (2). p. 153-168. Includes references. (NAL Call No.: DNAL SB998.N4N4).

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Compatibility of chlorpyrifos sprays with fertilizer and fungicide amendments on Florida peppers.
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Effect of fertilization with phosphorus, sulphur and micronutrients on yields of peppers growing on an alkaline soil.
JAUPA. Rivera, E. Iriarry, H. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Jan 1984. v. 68 (1). p. 1-4. (NAL Call No.: DNAL 8 P832J).

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Effect of high sulfate irrigation waters on soil salinity and yields.
AGJDAT. Papadopoulos, I. Madison, Wis. : American Society of Agronomy. Agronomy journal. May/June 1986. v. 78 (3). p. 429-432. Includes references. (NAL Call No.: DNAL 4 AM34P).

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Effect of nitrogen levels on metribuzin tolerance in tomatoes.
Nelson, E.H. Ashley, R.A. Storrs, The Station. Research report - Storrs Agricultural Experiment Station. Nov 1980. Nov 1980. (65). 17 p. ill. 27 ref. (NAL Call No.: 100 C76RE).

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Effect of plastic mulch and fumigation on tomato yield.
Kearney, N.S. Jr. Coffey, D.L. Knoxville, Tenn. : The Station. Tennessee farm and home science - Tennessee Agricultural Experiment Station. Oct/Dec 1982. Dct/Dec 1982. (124). p. 2-4. ill. Includes references. (NAL Call No.: 100 T25F).

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Effect of tomato cultivar and fertilizer regime on the survival of Liriomyza trifolii (Diptera: Agromyzidae).
JEENAI. Bethke, J.A. Parrella, M.P.; Trumble, J.T.; Toscano, N.C. College Park, Md. : Entomological Society of America. Journal of economic entomology. Feb 1987. v. 80 (1). p. 200-203. Includes references. (NAL Call No.: DNAL 421 J822).

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Effect of water treatment sludge on growth and elemental composition of tomato (Lycopersicon esculentum) shoots.
CSOSA2. Elliott, H.A. Singer, L.M. New York, N.Y. : Marcel Dekker. Communications in soil science and plant analysis. Feb 1988. v. 19 (3). p. 345-354. Includes references. (NAL Call No.: DNAL S590.C63).

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Effective use of marine algal products in the management of plant-parasitic nematodes.
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Effects of applied phosphorus on seedling growth and yields of tomatoes and chile.
Cotter, D.J. Las Cruces, N.M. : The Station. Research report - New Mexico, Agricultural Experiment Station. Sept 1983. Sept 1983. (515). 10 p. Includes references. (NAL Call No.: 100 N465R).

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Effects of calcium and magnesium lime sources on yield, fruit quality, and elemental uptake of tomato (Lycopersicon esculentum, plant nutrition).
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Effects of excess levels of a polymer as a soil conditioner on yields and mineral nutrition of plants.
SOSCAK. Wallace, A. Wallace, G.A.; Abouzamzam, A.M. Baltimore, Md. : Williams & Wilkins. Soil science. May 1986. v. 141 (5). p. 377-380. Includes references. (NAL Call No.: DNAL 56.8

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Effects of preplant phosphorus fertilization rate and of nitrate and ammonium liquid feeds on tomato grown in peat--vermiculite (Soilless media).
Gibson, C.J.JOSHB. Pill, W.G. Alexandria : The Society. Journal of the American Society for Horticultural Science. Nov 1983. v. 108 (6). p. 1007-1011. ill. Includes references. (NAL Call No.: 81 SO12).

1392

External and internal blotchy ripening and fruit elemental content of trickle-irrigated tomatoes as affected by N and K application time.
JOSHB. Dangler, J.M. Locascio, S.J. Alexandria, Va. : The Society. Tomatoes (Lycopersicon esculentum Mill.) were grown on polyethylene-mulched beds of an Arrendondo fine sand during two seasons to evaluate the effects of trickle irrigation-applied N and/or K, percentages of trickle-applied nutrient(s) (50%, 75%, and 100%), and schedules of nutrient application (variable, 2% to 12.5% of total amount weekly, or constant, 8.3% of the total amount weekly) on the occurrence of fruit external and internal blotchy ripening and fruit mineral nutrient concentration. Trickle-applied fertilizer was injected into the irrigation water weekly during the first 12 weeks of each season. External and internal blotchy ripening were less severe with trickle-applied N supplied as N + K or N than with preplant-applied N. Trickle-applied N + K or N resulted in higher fruit concentrations of N, P, K, Ca, and Mg than with all preplant-applied N. Internal fruit quality improved slightly as the trickle-applied percentage of N and/or K increased from 50% to 100%, but significant differences in exterior quality were not obtained. Internal fruit quality was higher early in the season than late in the season during both years, but this response was not associated with fruit elemental concentration. The weekly schedule of nutrient injection had no significant effect on fruit quality or fruit elemental concentration. Highest yields of high-quality fruit were obtained with 50% trickle-applied N + K. Journal of the American Society for Horticultural Science. July 1990. v. 115 (4). p. 547-549. Includes references. (NAL Call No.: DNAL 81 SO12).

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Bottcher, A.B. Campbell, K.L.; Miller, L.W.; Sweeney, D.W.; Locascio, S.J. S.l. : The Society. Proceedings - Soil and Crop Science Society of Florida. 1986. v. 45. p. 60-67. Includes references. (NAL Call No.: DNAL 56.9 SO32).

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Influence of dikegulac on the growth of processing tomatoes.
HJHSA. Frost, D.J. Kretchman, D.W. Alexandria, Va. : American Society for Horticultural Science. HortScience. Apr 1987. v. 22 (2). p. 232-234. Includes references. (NAL Call No.: DNAL SB1.H6).

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N and P fertilizers and growth and yield of sweet pepper.
JAUPA. Gonzalez, A. Beale, A. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Apr 1987. v. 71 (2). p. 209-215. Includes references. (NAL Call No.: DNAL 8 P832J).

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Nitrogen fertigation of greenhouse-grown tomato.
CSOSA2. Papadopoulos, I. New York, N.Y. : Marcel Dekker. Communications in soil science and plant analysis. Aug 1987. v. 18 (8). p. 897-907. Includes references. (NAL Call No.: DNAL S590.C63).

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Ntrogen fertilizer management practices to enhance seed production by 'Anaheim Chili' peppers.
JOSHB. Payero, J.O. Bhangoo, M.S.; Steiner, J.J. Alexandria, Va. : The Society. The effects of six applied N treatments differing by rates and frequencies of application on the yield and quality of pepper (Capsicum annuum var. annuum L. 'Anaheim Chili') grown for seed was studied. The timing of N applications was based on crop phenology, leaf petiole nitrate-nitrogen concentrations (NO3-N) minimum thresholds, and scheduled calendar applications of fixed amounts of N. Solubilized NH4NO3 was applied through a trickle-irrigation system to ensure uniform and timely applications of N. Rate of mature (green and red) fruit production was unaffected by any treatment except weekly applications of 28 kg.ha-1 of N, which stopped production of mature fruit before all other treatments. Early season floral bud and flower production increased with increasing amounts of N. The two highest total N treatments produced more floral buds and flowers late in the season than the other treatments. Total fruit production was maximized at 240 kg N/ha. Differences in total fruit production due to frequency of N application resulted at the highest total N level. Red fruit production tended to be maximized with total seasonal applied N levels of 240 kg.ha-1 and below, although weekly applications of N reduced production. Total seed yield was a function of red fruit production. Pure-live seed (PLS) production was a function of total seed

production. Nitrogen use efficiency (NUE) for red fruit production also decreased with N rates >240 kg.ha-1, but PLS yield and NUE decreased in a near-linear fashion as the amount of total seasonal applied N increased, regardless of application frequency. Season average NO3-N (AVE ND3-N) values >4500 mg.kg-1 had total seed and PLS yields less than those treatments <4000 mg.kg-1. Six-day germination percentage was reduced with weekly N applications of 14 kg.ha-1. Seed mass was reduced with weekly N applications of 28 kg.ha-1. Final germination percent, seedling root length and weight, and field emergence were unaffected by any of the N tre. Journal of the American Society for Horticultural Science. Mar 1990. v. 115 (2). p. 245-251. Includes references. (NAL Call No.: DNAL 81 SO12).

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Off-season land management, soil solarization and fumigation for tomato.
Overman, A.J. S.l. : The Society. Proceedings - Soil and Crop Science Society of Florida. 1985. v. 44. p. 35-39. ill. Includes 9 references. (NAL Call No.: DNAL 56.9 SO32).

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Pepper transplant response to root volume and nutrition in the nursery.
AGJOAT. Bar-Tal, A. Bar-Yosef, B.; Kafkafi, U. Madison, Wis. : American Society of Agronomy. The use of pepper (Capsicum annuum L.) seedlings for transplanting in the field is common. However, very little is known about the effects of root volume and nutrition in the nursery on transplant performance in the field. The objective of this work was to study the effects of N and P supply to various root volumes on pepper seedling development and growth in the nursery, and fruit yield and harvest earliness in the field. Seedlings were grown in trays packed with a peat/vermiculite mixture, 1:1 (v/v). The plants were irrigated by soaking the trays in the studied nutrient solutions. Phosphorus and N concentrations in the test solutions were 0.1, 0.5 and 1.0 mM P and 1, 5, 10 and 15 mM N (NH4/NO3=1:1). Root volumes (V) were 5, 15, 35, 65 and 700 cm3 plant-1. Following transplanting, all plants in the field received identical, optimal irrigation and fertilization. Seedling weight increased with increasing root volume and nutrient concentrations in the irrigation water. The optimal solution for pepper seedlings in the studied growth medium was 5 mM N and 0.5 mM P. Nitrogen, P and K contents in tops of optimal seedlings (V = 700 cm3) were 39, 5.5 and 67 g kg-1 dry matter, respectively. Seedling development was retarded when top's content was less than 25 mg N kg-1 and less than 3.1 mg P kg-1. Four weeks after transplanting plant weight in the field increased and fruit ripening was hastened when the top's dry weight at planting time increased from 63 to 285 mg plant-1. Plant relative growth rate and total fruit yield were unaffected by nursery treatments. Agronomy journal. Sept/Oct 1990. v. 82 (5). p. 989-995. Includes references. (NAL Call No.: DNAL 4 AM34P).

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Preplant broadcast and banded phosphorus effects on growth and yield of long green, mildly pungent chile (Capsicum annum L.) / Donald J. Cotter .
Cotter, D. J. Las Cruces, N.M. : New Mexico State University, Agricultural Experiment Station, 1986. Cover title. 4 p. : ill. ; 28 cm. Bibliography: p. 6. (NAL Call No.: DNAL 100 N465R no.580).

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Tensiometer control and fertigation of micro irrigated tomatoes.
Clark, G.A. Haman, D.Z.; Hanlon, E.A.; Hochmuth, G.J. St. Joseph, Mich. : The Society. American Society of Agricultural Engineers (Microfiche collection). Paper presented at the 1987 Winter Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. 1987. (fiche no. 87-2520). 17 p. Includes references. (NAL Call No.: DNAL FICHE S-72).

1402

Transplant age and N and P nutrition effects on growth and yield of tomatoes.
HJHSA. Weston, L.A. Zandstra, B.H. Alexandria, Va. : American Society for Horticultural Science. HortScience. Feb 1989. v. 24 (1). p. 88-90. Includes references. (NAL Call No.: DNAL SB1.H6).

1403

Transplant quality, yield, and heavy-metal accumulation of tomato, muskmelon, and cabbage grown in media containing sewage sludge compost (Toxicity, vegetable, Brassica oleracea, Lycopersicon esculentum).
Sterrett, S.B.JOSHB. Reynolds, C.W.; Schales, F.D.; Chaney, R.L.; Douglass, L.W. Alexandria : The Society. Journal of the American Society for Horticultural Science. Jan 1983. v. 108 (1). p. 36-41. Includes references. (NAL Call No.: 81 SO12).

1404

Water quantity and time of N and K application for trickle-irrigated tomatoes.
JOSHB. Locascio, S.J. Olson, S.M.; Rhoads, F.M. Alexandria, Va. : The Society. Tomatoes (Lycopersicon esculentum Mill.) were grown during two seasons at two locations on fine sands and fine sandy loam soils to study the influence of water quantity, frequency of water application, and timing of N and K application for polyethylene-mulched, trickle-irrigated fresh-market tomatoes. Water quantities were 0.50 and 1.0 times pan evaporation applied one or three times daily. Nitrogen and K were applied 100% preplant or 40% applied preplant and 60% applied with trickle irrigation. Higher tomato leaf tissue N and K concentrations in one of the two seasons and higher fruit yields were obtained with 0.5 than with 1.0 time pan water evaporation on a fine sand at Gainesville, Fla. On a fine sandy loam soil at Quincy, fruit yields were higher in a relatively dry season with the higher water quantity and not influenced by the water quantity applied in the second relatively wet season. The number of daily water applications (one vs. three) at both locations had no effect on N and K uptake or fruit yields. Time of N and K applications had no effect on early yields, but total yields were higher with split than all preplant-applied N and K on the fine sandy soil. Split applications of fertilizer resulted in greater yields of extra-large fruit at mid-season and of extra large fruit at late harvest than all preplant-applied fertilizer. On the fine sandy loam soil, time of fertilizer application had no effect on yield. Journal of the American Society for Horticultural Science. Mar 1989. v. 114 (2). p. 265-268. Includes references. (NAL Call No.: DNAL 81 SO12).

1405

Yield of successively cropped polyethylene-mulched vegetables as affected by irrigation method and fertilization management.
JOSHB. Clough, G.H. Locascio, DS.J.; Olson, S.M. Alexandria, Va. : The Society. Broccoli (Brassica oleracea L. var. italica), followed by tomato (Lycopersicon esculentum Mill.) or squash (Cucurbita pepo L. var. melopepo), and then broccoli were produced in succession re-using the same polyethylene-mulched beds at two locations with different soil types. First-crop broccoli yield was earlier and greater with drip than with overhead irrigation and increased as N-K rate increased from 135-202 to 270-404 kg.ha-1. On a fine sandy soil, yields of second and third crops produced with residual or concurrent fertilization increased with an increase in N-K rate. On a loamy fine sandy soil, yields also increased as the rate of residual N-K increased; yields of second and third crops did not respond to rate of concurrently applied N-K, but were higher with concurrent than with residual fertilization, except total tomato yields were similar with either application time. With drip irrigation and concurrent weekly fertigation, yields equalled or exceeded those obtained with preplant fertilization and overhead irrigation. Journal of the American Society for Horticultural Science. Nov 1990. v. 115 (6). p. 884-887. Includes references. (NAL Call No.: DNAL 81 SO12).

1406

Yield of trickle-irrigated tomatoes as affected by time of N and K application.
JOSHB. Dangler, J.M. Locascio, S.J. Alexandria, Va. : The Society. Tomatoes (Lycopersicon esculentum Mill.) were grown on polyethylene-mulched beds of an Arredondo fine sand during two seasons to evaluate the effects of trickle-applied N and/or K, percentages of trickle-applied N and K (50%, 75%, and 100%), and schedules of N and K application on fruit yield, and leaf and shoot N and K concentrations. The daily irrigation requirement, calculated at 47% of the water evaporated from a U.S. Weather Service Class A pan (Epan), was met by the application of 4.6 mm to 7.2 mm water/day. Fertilizer was injected weekly in a variable (2% to 12.5% of the total amount weekly) or constant (8.3% of the total amount weekly) schedule during the first 12 weeks of each season. Trickle-applied nutrients and trickle-applied percentage of nutrients interacted in their effects on early, midseason, and total marketable fruit yields. When N + K and N were trickle-applied, the mean early total marketable fruit yield decreased linearly from 25.3 t.ha-1 to 16.3 t.ha-1 as the trickle-applied percentage of nutrients increased from 50% to 100%; but when K was trickle-applied (100% preplant-applied N), yields were not affected by the trickle-applied percentage (mean 26.3 t.ha-1). The weekly schedule of N and K injection had no effect on fruit yield or other characteristics. Higher leaf N and K concentrations early in the season were obtained when the respective nutrient was 50% to 100% preplant-applied than when the respective nutrient was 75% to 100% trickle-applied; but late in the season, higher concentrations were obtained when the respective nutrient was trickle-applied. Higher yields, however, were associated with higher early season leaf N concentrations rather than with higher late-season leaf N or K concentrations. Journal of the American Society for Horticultural Science. July 1990. v. 115 (4). p. 585-589. Includes references. (NAL Call No.: DNAL 81 SO12).

1407

Yields of greenhouse tomatoes managed to maintain specific petiole sap nitrate levels.
HJHSA. Coltman, R.R. Alexandria, Va. : American Society for Horticultural Science. HortScience. Feb 1988. v. 23 (1). p. 148-151. Includes references. (NAL Call No.: DNAL SB1.H6).

1408

Effect of plastic soil and plant covers on Iowa tomato and muskmelon production.
Taber, H.G. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1983. (17th). p. 37-45. Includes references. (NAL Call No.: DNAL 309.9 N216).

1409

Effect of soil management practices on yield and foliar nutrient concentration of dry beans, carrots, and tomatoes.
Eggert, F.P. New York : Praeger, 1983. Environmentally sound agriculture : selected papers, 4th conference, International Federation of Organic Agriculture Movements, Cambridge, Mass., August 18-20, 1982 / edited by William Lockeretz. p. 247-259. Includes references. (NAL Call No.: DNAL S604.5.E58).

1410

Effects of no tillage and various tillage methods on yields of maize, field beans and pepper grown on a mollisol in southern Puerto Rico.
JAUPA. Lugo-Mercado, H.M. Badillo-Feliciano, J.; Ortiz-Alvarado, F.H. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Oct 1984. v. 68 (4). p. 349-354. Includes 15 references. (NAL Call No.: DNAL 8 P832J).

1411

Effects of plant diversity and density on the emigration rate of two ground beetles, Harpalus pennsylvanicus and Evarthrus sodalis (Coleoptera: Carabidae), in a system of tomatoes and beans.
EVETEX. Perfecto, I. Horwith, B.; Vandermeer, J.; Schultz, B.; McGuinness, H.; Dos Santos, A. College Park, Md. : Entomological Society of America. Environmental entomology. Oct 1986. v. 15 (5). p. 1028-1031. ill. Includes references. (NAL Call No.: DNAL QL461.E532).

1412

Effects of planting densities, irrigation, and hornworm larvae on yields in experimental intercrops of tomatoes and cucumbers.
JOSHB. Schultz, B. McGuinness, H.; Horwith, B.; Vandermeer, J.; Phillips, C.; Perfecto, I.; Rosset, P.; Ambrose, R.; Hansen, M. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Sept 1987. v. 112 (5). p. 747-755. Includes references. (NAL Call No.: DNAL 81 SO12).

1413

Effects of plastic mulch types on crop performance of drip irrigated winter and summer peppers.
JAUPA. Goyal, M.R. Guadalupe Luna, R.; Rivera, L.E.; Hernandez, E.R. de. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. July 1984. v. 68 (3). p. 297-305. Includes 11 references. (NAL Call No.: DNAL 8 P832J).

1414

Effects of water application rates, plastic-mulch, and staking on size arrangements of mature green tomatoes under drip irrigation.
Guadalupe-Luna, R.JAUPA. Goyal, M.R.; Cintron, M.; Rivera, L.E.; Prieto de Lopez, M. del. Rio Piedras : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. July 1983. v. 67 (3). p. 293-302. ill. (NAL Call No.: 8 P832J).

1415

Factors affecting harvest date of tomato grown under floating row cover.
AAREEZ. Gent, M.P.N. New York, N.Y. : Springer. Floating row covers trap the heat from solar radiation, warm covered plants and should accelerate plant development. However, in three years of field trials in Connecticut USA (Latitude 42N), the mid-harvest date for tomato (Lycopersicon esculentum Mill.) planted in the spring and grown under spun bonded polypropylene floating row cover was rarely earlier than for tomato grown in the open. When planted on 23 May, the mid-harvest date was delayed up to 9 days by covering plants for one month after transplant. The mid-harvest date was also delayed when planted on 20 April and covered for two months. Under row cover, daily maximum plant temperatures ranged from 3 to 10 degrees C (5 to 18 degrees F) warmer than in the open, depending primarily on irradiance. In June, mean daytime temperatures under row cover were often above 26 degrees C (78 degrees F), the optimum for growth and development of tomato under controlled conditions. Although growing degree days, the accumulation of temperature above 10 degrees C (50 degrees F), predicted the variation in time from transplant to mid-harvest for plants grown in the open, only physiological days, which assumed development slows at mean daytime temperatures above 26 degrees C, predicted the slow ripening of tomato grown under row cover in June. Applied agricultural research. Spring 1990. v. 5 (2). p. 112-118. Includes references. (NAL Call No.: DNAL S539.5.A77).

1416

Further experiments on the effects of mulches on crop yields and soil conditions (Lettuce, beets, tomatoes).
Ervin, S. Woods Hole, Mass., New Alchemy Institute. The Journal of the new alchemists. 1980. 1980. (6). p. 53-56. ill. 2 ref. (NAL Call No.: GF1.J6).

1417

Herbicide programs for peppers on clear plastic.
PNWSB. Bellinder, R.R. Warholic, D.T. Beltsville, Md. : The Society. Proceedings of the ... annual meeting - Northeastern Weed Science Society. 1987. v. 41. p. 134. (NAL Call No.: DNAL 79.9 N814).

1418

Hydroponic tomato yield affected by chlormequat chloride, seeding time, and transplant maturity.
JOSHB. Adler, P.R. Wilcox, G.E. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Mar 1987. v. 112 (3). p. 198-201. Includes references. (NAL Call No.: DNAL 81 SO12).

1419

Influence of conservation tillage practices on populations of Colorado potato beetle (Coleoptera: Chrysomelidae) in rotated and nonrotated tomato fields.
EVETEX. Zehnder, G.W. Linduska, J.J. College Park, Md. : Entomological Society of America. Environmental entomology. Feb 1987. v. 16 (1). p. 135-139. Includes references. (NAL Call No.: DNAL QL461.E532).

1420

Influence of different types of mulches on eggplant production.
HJHSA. Carter, J. Johnson, C. Alexandria, Va. : American Society for Horticultural Science. HortScience. Feb 1988. v. 23 (1). p. 143-145. Includes references. (NAL Call No.: DNAL SB1.H6).

1421

Intercropping vegetables with plastic mulch and row tunnels.
Gerber, J.M. Brown, J.E.; Splittstoesser, W.E. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1983. (17th). p. 24-27. Includes references. (NAL Call No.: DNAL 309.9 N216).

1422

Irrigation timing as a factor in crop tolerance in salinity.
Shalhever, J. Meiri, A.; Heuer, B. Davis : University of California, Davis?, 1981? . A Conference on biosalinity : the problem of salinity in agriculture : a joint conference of Egyptian, Israeli and American scientists, Univ. of California, Davis, September 1-4, 1981 / organized and. p. 54-56. (NAL Call No.: DNAL S619.S24C6).

1423

Modeling row cover effects on microclimate and yield. I. Growth response of tomato and cucumber.
JOSHB. Wolfe, D.W. Albright, L.D.; Wyland, J. Alexandria, Va. : The Society. Several polyethylene and fabric row cover materials, and clear and black polyethylene mulch, were evaluated in a 2-year field study. For cucumbers Cucumis sativus (L.) , visible wilting and slowed growth rates of young transplants exposed to cold nights were minimized when grown under row covers that maintained high humidities and higher air and soil temperatures than in the exposed controls. Early cucumber yields were increased 2- to 6-fold by the use of covers. In contrast, tomatoes Lycopersicon esculentum (Mill.) showed no significant early yield increases, but a 63% reduction in early yield in 1985 under a perforated clear polyethylene cover. The frequency and duration of daytime air temperatures exceeding 35C had a negative impact on tomato fruit size, quality, and percentage marketable. For cucumber, the relationship between cumulative degree days (during the covered interval) and biomass, early, and total yields was linear (r2 between 0.70 and 0.82) with positive slope. Tomato yields could not be accurately predicted using this approach, but correlations were improved (for the 1985 data set) by using modified degree-day formulas incorporating a negative high-temperature factor. Journal of the American Society for Horticultural Science. July 1989. v. 114 (4). p. 562-568. Includes references. (NAL Call No.: DNAL 81 SO12).

1424

Reflective mulches influence plant survival, production, and insect control in fall tomatoes.
HJHSA. Schalk, J.M. Robbins, M.L.R. Alexandria, Va. : American Society for Horticultural Science. HortScience. Feb 1987. v. 22 (1). p. 30-32. Includes references. (NAL Call No.: DNAL SB1.H6).

1425

Restricted root zone volume: influence on growth and development of tomato.
JOSHB. Ruff, M.S. Krizek, D.T.; Mirecki, R.M.; Inouye, D.W. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Sept 1987. v. 112 (5). p. 763-769. ill..Includes references. (NAL Call No.: DNAL 81 SO12).

1426

Salt stress, mechanical stress, or chlormequat chloride effects on morphology and growth recovery of hydroponic tomato transplants.
JOSHB. Adler, P.R. Wilcox, G.E. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. Jan 1987. v. 112 (1). p. 22-25. Includes 14 references. (NAL Call No.: DNAL 81 SO12).

1427

Seedling diseases of vegetables in conservation tillage with soil fugicides and fluid drilling.
PLDIDE. Sumner, D.R. Ghate, S.R.; Phatak, S.C. St. Paul, Minn. : American Phytopathological Society. Plant disease. Apr 1988. v. 72 (4). p. 317-320. Includes references. (NAL Call No.: DNAL 1.9 P69P).

1428

Tomato production and weed control in no-tillage versus conventional tillage.
JOSHB. Shelby, P.P. Jr. Coffey, D.L.; Rhodes, G.N. Jr.; Jeffery, L.S. Alexandria, Va. : The Society. Field studies were conducted in 1983 and 1984 to evaluate the feasibility of growing fresh-market tomatoes (Lycopersicon esculentum Mill. 'Floradade') in no-tillage or conventional tillage systems and to evaluate the efficacy of postemergence herbicides under both tillage systems. In 1983, marketable fruit yields in no-tillage were nearly twice those from conventional tillage. In 1984, there were no statistical differences in marketable yields among herbicide treatments or between tillage systems. Yields were higher in 1984 than in 1983, largely due to more favorable growing conditions. In both years, metribuzin provided good broadleaf weed control. In 1983, annual grasses were better controlled in no-tillage with a sequential metribuzin application for fluazifop following metribuzin than with a single metribuzin application. Marketable yields were highest in plots where annual grasses were adequately controlled. Sequential metribuzin applications provided good broadleaf weed control and postemergence grass herbicides each provided excellent annual grass control in 1984. Chemical names used: (+/-)-2- 4- 5-(trifluoromethyl)-2-pyridinyl o-xy phenoxy propanoic acid (fluazifop); 4-amino-6-(1,1-diemthylethyl)-3-(methylthio)-1-,2,4-triazin-5(4H)-one (metribuzin). Journal of the American Society for Horticultural Science. Sept 1988. v. 113 (5). p. 675-678. Includes references. (NAL Call No.: DNAL 81 SO12).

1429

Tomato yield as influenced by plant protection systems.
HJHSA. Perry, K.B. Sanders, D.C. Alexandria, Va. : American Society for Horticultural Science. HortScience. Apr 1986. v. 21 (2). p. 238-239. Includes references. (NAL Call No.: DNAL SB1.H6).

1430

Use of biological control measures in the intensive management of insect pests in New Jersey.
Lashomb, J.H. Metterhouse, W.; Chianese, R. Greenbelt, Md. : Institute for Alternative Agriculture. The U.S. public is epxressing strong preference for the use of biological control methods in the management of U.S. agricultural, forest and rangeland insect pests. This follows from a widespread understanding among citizens that synthetic insecticides have potentially harmful side effects on humans and that they are spreading increasingly as pollutants in the environment. Major recent increases in the number of pesticide-resistant insect species also put pressure on the agricultural community toward adoption of alternative non-agchemical plant and animal protection strategies. Movement in the direction of such alternatives has been facilitated by the fact that in the last two decades much progress has been made in Integrated Pest Management (IPM) through an improved understanding of the interactions of pests with their hosts. In that time period, many advances have been made in describing and predicting insect movement, seasonal cycles, and the effects of secondary plant compounds on insect reproduction. Simultaneously, much has been learned about the behavior, physiology, and population dynamics of insect parasitoids, i.e. parasites on insect pests. In the 1990's and subsequently, Biological Control Intensive Pest Management (BCIPM) will require continuing research to attain needed advancement in knowledge of growth and development of host plants, population dynamics of pests and parasitoids, and ecology of secondary pests that may interfere with implementation of BCIPM programs. Extension and research personnel will then be increasingly able to devise useful control methods for pests within selected cropping systems. We describe here examples to illustrate present and potential future use of BCIPM in different practical plant systems in New Jersey. American journal of alternative agriculture. Paper presented at the "Symposium on Biological Pest Control", Mar 1, 1988, Washington, DC.~ Literature review. Spring/Summer 1988. v. 3 (2/3). p. 77-82. Includes references. (NAL Call No.: DNAL S605.5.A43).

1431

Yield response of watermelon, tomato and pigeon pea to land preparation techniques in southern Puerto Rico.
JAUPA. Lugo-Mercado, H.M. Badillo-Feliciano, J.; Ortiz-Alvarado, F.H. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. Apr 1987. v. 71 (2). p. 203-208. Includes references. (NAL Call No.: DNAL 8 P832J).

1432

Improvement of root formation of plants under the effect of fusicoccin.
Sultonov, Yu. Muromtsev, G.S. New York, N.Y. : Allerton Press. Soviet agricultural sciences. Translated from: Vsesoiuznaia akademiia sel'skokhizistvennykh nauk, Doklady, p. 5-6. (20 AK1). 1985. (2). p. 5-7. ill. Includes 10 references. (NAL Call No.: DNAL S1.S68).

1433

Effect of simulated acid rain on growth and yield of Valencia orange, Floradade tomato and slash pine in Florida.
ETOCDK. Hart, R. Biggs, R.H.; Webb, P.G.
Elmsford : Pergamon Press. Environmental toxicology and chemistry. 1986. v. 5 (1). p. 79-85. Includes 21 references. (NAL Call No.: DNAL QH545.A1E58).

1434

Comparative toxicity of acaricides to Aculops lycopersici and Homeopronematus anconai (Acari: Eriophyidae, Tydeidae).
JEENAI. Royalty, R.N. Perring, T.M. College Park, Md. : Entomological Society of America. Journal of economic entomology. Apr 1987. v. 80 (2). p. 348-351. Includes references. (NAL Call No.: DNAL 421 J822).

1435

Controlling Drosphila flies on tomatoes grown for canning by Horatio C. Mason and Howard E. Dorst . --.
Mason, Horatio C. Washington, D.C. : U.S. Dept. of Agriculture, 1962. 12 p. : ill. --. (NAL Call No.: DNAL Fiche S-70 no.2189).

1436

Toxicity studies of analogs of 2-tridecanone, a naturally occurring toxicant from a wild tomato (Heliothis zea, tomato fruitworm, insect toxicity).
Dimock, M.B. Kennedy, G.G.; Williams, W.G. New York, N.Y., Plenum Press. Journal of chemical ecology. May 1982. v. 8 (5). p. 837-842. 11 ref. (NAL Call No.: QD415.A1J6).

1437 1438

Comparative host suitability of bell pepper and selected weed species for Liriomyza trifolii (Burgess). Comparative host suitability of bell pepper and selected weed species for Liriomyza trifolii (Burgess).
SENTD. SENTD. Chandler, L.D. Chandler, L.D. Chandler, J.M. Chandler, J.M. College Station, Tex. : Southwestern Entomological Society. College Station, Tex. : Southwestern Entomological Society. The Southwestern entomologist. The Southwestern entomologist. June 1988. v. 13 (2). June 1988. v. 13 (2). p. 137-146. p. 137-146. Includes references. Includes references. (NAL Call No.: DNAL QL461.S65).(NAL Call No.: DNAL QL461.S65).

1439

Field performance of transgenic tomato plants expressing the Bacillus thuringiensis var. Kurstaki insect control protein.
Delannay, X. LaVallee, B.J.; Proksch, R.K.; Fuchs, R.L.; Augustine, S.R.; Layton, J.G.; Fischhoff, D.A. New York, N.Y. : Nature Publishing Company. Bio/technology. Dec 1989. v. 7 (12). p. 1265-1269. ill. Includes references. (NAL Call No.: DNAL QH442.B5).

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Toxicity studies of analogs of 2-tridecanone, a naturally occurring toxicant from a wild tomato (Heliothis zea, tomato fruitworm, insect toxicity).
Dimock, M.B. Kennedy, G.G.; Williams, W.G. New York, N.Y., Plenum Press. Journal of chemical ecology. May 1982. v. 8 (5). p. 837-842. 11 ref. (NAL Call No.: QD415.A1J6).

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Effective use of marine algal products in the management of plant-parasitic nematodes.
JONEB. Paracer, S. Tarjan, A.C.; Hodgson, L.M.
Raleigh, N.C. : Society of Nematologists.
Journal of nematology. Apr 1987. v. 19 (2). p. 194-200. ill. Includes references. (NAL Call No.: DNAL QL391.N4J62).

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Storage of germinated tomato and pepper seeds.
JOSHB. Ghate, S.R. Chinnan, M.S. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. July 1987. v. 112 (4). p. 645-651. Includes references. (NAL Call No.: DNAL 81 SO12).

1443

Durability and efficiency of photodegradable mulches in drip-irrigated vegetable production systems.
Clough, G.H. Reed, G.L. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1989. (21st). p. 42-46. Includes references. (NAL Call No.: DNAL 309.9 N216).

1444

Nitrogen, lime and mulch effect on eggplant production.
Paterson, J.W. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1989. (21st). p. 177-179. (NAL Call No.: DNAL 309.9 N216).

1445

The effect of night temperature and glasshouse ventilatin on the incidence of Botrytis cinerea in a late-planted tomato crop.
CRPTD6. Morgan, W.M. Guildford, Eng. : Butterworths. Crop protection. June 1984. v. 3 (2). p. 243-251. ill. Includes references. (NAL Call No.: DNAL SB599.C8).

1446

Energy conservation and environmental control.
Roberts, W.J. Honolulu, Hawaii, USA : International Center for Special Studies, c1985. Hydroponics worldwide : state of the art in soilless crop production / Adam J. Savage, editor. p. 21-30. ill. Includes references. (NAL Call No.: DNAL SB126.5.H94).

1447

Mechanizing double row covers for the tomato crop.
AGENA. Whitney, L.F. Hochmuth, G.J.; McDonnell, T. St. Joseph, Mich. : American Society of Agricultural Engineers. Agricultural engineering. Dec 1984. v. 65 (12). p. 8-10. ill. (NAL Call No.: DNAL 58.8 AG83).

1448

Tomatoes--a review of current research and development on glasshouse environment and fruit quality in the UK.
AAREEZ. Hayman, G. New York, N.Y. : Springer. Recent UK research and development on the effects of light, humidity, temperature, and carbon dioxide enrichment on glasshouse tomatoes are described. Because of the high cost of inputs such as fuel in long-season tomato production in northern Europe, growers need to manipulate the glasshouse environment to give the optimum economic response to the use of inputs. Such a regime needs to seek not only the maximum response to any individual factor but also to achieve a balance between potentially opposing factors. As an example humidity control is normally achieved through the use of ventilation and heat. Not only will the crop response have to be weighed against the increased fuel cost, but increased ventilation will reduce the potential for carbon dioxide enrichment. In practice there is evidence that growers in more favorable light areas or with better light transmitting glasshouses are not achieving maximum crop production because of an over-emphasis on humidity control in the spring. Modern computers bring the potential for economic optimisation of the environment. Within the experimental program, detailed assessments of quality factors have been made. These have covered a range of visual aspects, compositional factors, and product life. The potential for development of a premium tomato of superior composition and individual appearance is proposed. Applied agricultural research. 1988. v. 3 (5). p. 269-274. Includes references. (NAL Call No.: DNAL S539.5.A77).

1449

Effect of row covers on microclimate and yield of tomato and cucumber.
Wolfe, D.W. Wyland, J.; Albright, L.D.; Novak, S. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1986. (19th). p. 35-50. Includes references. (NAL Call No.: DNAL 309.9 N216).

1450

Effects of black plastic mulch and row covers on the growth and performance of eggplant intercropped with mustard greens.
Brown, J.E. Lewis, G.A.; Carden, E.L.; McDaniel, R.N. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1986. (19th). p. 384-395. Includes references. (NAL Call No.: DNAL 309.9 N216).

1451

Evaluation of herbicides for use between plastic mulch in cucurbit and solanaceous crop production.
Bonanno, A.R. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1986. (19th). p. 339-347. Includes references. (NAL Call No.: DNAL 309.9 N216).

1452

Influence of certain open helix variables on pepper damage.
TAAEA. Marshall, D.E. Esch, T.A.; Dragt, S.R. St. Joseph, Mich. : The Society. Transactions of the ASAE - American Society of Agricultural Engineers. May/June 1986. v. 29 (3). p. 714-717. Includes references. (NAL Call No.: DNAL 290.9 AM32T).

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Machine harvesting of fresh tomatoes from plastic mulch covered bed.
Shaw, L.N. St. Joseph, Mich. : American Society of Agricultural Engineers, c1984. Fruit, nut, and vegetable harvesting mechanization : proceedings, International Symposium on Fruit ... Mechanization, Dct 5-12, 1983, Volcani Center, Bet Dagan, Israel / Institute of Agricultural Engi. p. 232-239. ill. Includes 7 references. (NAL Call No.: DNAL SB360.3.I5 1983).

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Pepper damage as influenced by some open-helix variables.
Marshall, D.E. Esch, T.A.; Dragt, S.R. St. Joseph, Mich. : The Society. Paper - American Society of Agricultural Engineers (Microfiche collection). Paper presented at the 1984 Winter Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Drder Dept., 2950 Niles Road,. Winter 1984. (84-1572). 14 p. (NAL Call No.: DNAL FICHE 290.9 AM32P).

1455

Recovery and damage of mechanically harvested peppers.
TAAEA. Marshall, D.E. Esch, T.A. St. Joseph, Mich. : The Society. Transactions of the ASAE - American Society of Agricultural Engineers. Mar/Apr 1986. v. 29 (2). p. 398-401. Includes 16 references. (NAL Call No.: DNAL 290.9 AM32T).

1456

Recovery and damage of mechanically harvested peppers (Damage versus helix speed).
Marshall, D.E. Esch, T.A. St. Joseph, Mich. : The Society. Paper - American Society of Agricultural Engineers (Microfiche collection). 1984. Paper presented at the 1984 Summer Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Drder Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. 1984. (fiche no. 84-1070). 1 microfiche : ill. Includes references. (NAL Call No.: FICHE S-72).

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Response of tomatoes to plant protectors and the effect of floating row covers on radish, cabbage, and sweet corn at Redmond, Oregon in 1986.
Nelson, J.L. Young, M. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1987. v. 20. p. 170-176. Includes references. (NAL Call No.: DNAL 309.9 N216).

1458

Tomato harvester--air sonar for header height control.
Nine, P.L. Thompson, L.J. St. Joseph, Mich. : The Society. Paper - American Society of Agricultural Engineers (Microfiche collection). 1982. Paper presented at the 1982 Summer Meeting of the American Society of Agricultural Engineers. Available for purchase from: The

American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. 1982. (fiche no. 82-1067). 1 microfiche : ill. Includes references. (NAL Call No.: FICHE S-72).

1459

Use of row covers and black plastic mulch in control of southern blight on production of bell peppers.
Brown, J.E. Stevens, C.; Osborn, M.C.; Bryce, H.M. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1987. v. 20. p. 46-52. Includes references. (NAL Call No.: DNAL 309.9 N216).

1460

Energy conservation and environmental control.
Roberts, W.J. Honolulu, Hawaii, USA : International Center for Special Studies, c1985. Hydroponics worldwide : state of the art in soilless crop production / Adam J. Savage, editor. p. 21-30. ill. Includes references. (NAL Call No.: DNAL SB126.5.H94).

1461

Engineering economy of controlled environment for greenhouse production.
Ting, K.C. Dijkstra, J.; Fang, W.; Giniger, M. St. Joseph, Mich. : The Society. American Society of Agricultural Engineers (Microfiche collection). Paper presented at the 1987 Winter Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. 1987. (fiche no. 87-4546). 22 p. Includes references. (NAL Call No.: DNAL FICHE S-72).

1462

Root and air temperature effects on the flowering and yield of tomato (Lycopersicon esculentum, soil heating, hydroponics, energy conservation).
Papadopoulos, A.P.JOSHB. Tiessen, H. Alexandria : The Society. Journal of the American Society for Horticultural Science. Sept 1983. v. 108 (5). p. 805-814. ill. Includes references. (NAL Call No.: 81 SO12).

1463

Solar radiation and artificial lighting of controlled environments with particular emphasis on tomatoes / Craig Bredvold. -.
Bredvold, Craig. (St. Paul) Agricultural Experiment Station, University of Minnesota 1982. vi, 118 p. : ill., charts ; 28 cm. --.
Bibliography: p. (87)-90. (NAL Call No.: S1.M52 no.14).

1464

Effects of a diluted geothermal brine on growth and elementalcontentof tomato and sugarbeet.
Tompkins, G.A. Hung, R. New York, Marcel Dekker. Journal of plant nutrition. 1981. v. 3 (1/4). p. 457-471. ill. 6 ref. (NAL Call No.: QK867.J67).

1465

Effect of high sulfate irrigation waters on soil salinity and yields.
AGJDAT. Papadopoulos, I. Madison, Wis. : American Society of Agronomy. Agronomy journal. May/June 1986. v. 78 (3). p. 429-432. Includes references. (NAL Call No.: DNAL 4 AM34P).

1466

Effect of plastic mulch and trickle irrigation on tomato growth, yield, and nutrition.
Bhella, H.S. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1986. (19th). p. 80-86. Includes references. (NAL Call No.: DNAL 309.9 N216).

1467

Efficacy of metam sodium applied via drip irrigation on tomato.
Dverman, A.J. Csizinszky, A.A.; Jones, J.P.; Stanley, C.D. S.l. : The Society. Proceedings - Soil and Crop Science Society of Florida. 1987. v. 46. p. 4-7. Includes references. (NAL Call No.: DNAL 56.9 SD32).

1468

External and internal blotchy ripening and fruit elemental content of trickle-irrigated tomatoes as affected by N and K application time.
JDSHB. Dangler, J.M. Locascio, S.J. Alexandria, Va. : The Society. Tomatoes (Lycopersicon esculentum Mill.) were grown on polyethylene-mulched beds of an Arrendondo fine sand during two seasons to evaluate the effects of trickle irrigation-applied N and/or K, percentages of trickle-applied nutrient(s) (50%, 75%, and 100%), and schedules of nutrient application (variable, 2% to 12.5% of total amount weekly, or constant, 8.3% of the total amount weekly) on the occurrence of fruit external and internal blotchy ripening and fruit mineral nutrient concentration. Trickle-applied fertilizer was injected into the irrigation water weekly during the first 12 weeks of each season. External and internal blotchy ripening were less severe with trickle-applied N supplied as N + K or N than with preplant-applied N. Trickle-applied N + K or N resulted in higher fruit concentrations of N, P, K, Ca, and Mg than with all preplant-applied N. Internal fruit quality improved slightly as the trickle-applied percentage of N and/or K increased from 50% to 100%, but significant differences in exterior quality were not obtained. Internal fruit quality was higher early in the season than late in the season during both years, but this response was not associated with fruit elemental concentration. The weekly schedule of nutrient injection had no significant effect on fruit quality or fruit elemental concentration. Highest yields of high-quality fruit were obtained with 50% trickle-applied N + K. Journal of the American Society for Horticultural Science. July 1990. v. 115 (4). p. 547-549. Includes references. (NAL Call No.: DNAL 81 SD12).

1469

Influence of frequency and duration of furrow irrigation on the development of Phytophthora root rot and yield in processing tomatoes.
PHYTAJ. Ristaino, J.B. Duniway, J.M.; Marois, J.J. St. Paul, Minn. : American Phytopathological Society. Processing tomatoes grown in field plots with soil either infested or uninfested with Phytophthora parasitica were furrow irrigated for 4-8 hr every 14 days (normal irrigation), for 4-8 hr every 28 days (less frequent irrigation), or with alternating 4-8 hr and 24-hr irrigations every 14 days (prolonged irrigation). Disease developed more rapidly and symptom severity was significantly greater on shoots and roots of plants in infested soil that received prolonged irrigations compared with plants that were irrigated less frequently. Midday leaf water potential was reduced significantly as symptom severity increased and, by 90 days after planting, was correlated negatively with fruit yield at harvest (122 days). Disease significantly reduced fruit yield by 68 or 74%, 34 or 60%, and 20 or 43% as compared with uninoculated controls in prolonged, normal, or less frequent irrigation treatments in 1985 or 1986, respectively. Populations of P. parasitica in soil increased from 6 to 17 colony-forming units per gram (cfu/g) of soil infestation to 67-121 cfu/g of soil at harvest. Results clearly show that variations in the frequency and duration of furrow irrigation can have large effects on the development of Phytophthora root rot and yield loss to root rot in processing tomatoes. Phytopathology. Dec 1988. v. 78 (12,pt.2). p. 1701-1706. Includes references. (NAL Call No.: DNAL 464.8 P56).

1470

Ntrogen fertilizer management practices to enhance seed production by 'Anaheim Chili' peppers.
JDSHB. Payero, J.D. Bhangoo, M.S.; Steiner, J.J. Alexandria, Va. : The Society. The effects of six applied N treatments differing by rates and frequencies of application on the yield and quality of pepper (Capsicum annuum var. annuum L. 'Anaheim Chili') grown for seed was studied. The timing of N applications was based on crop phenology, leaf petiole nitrate-nitrogen concentrations (ND3-N) minimum thresholds, and scheduled calendar applications of fixed amounts of N. Solubilized NH4NO3 was applied through a trickle-irrigation system to ensure uniform and timely applications of N. Rate of mature (green and red) fruit production was unaffected by any treatment except weekly applications of 28 kg.ha-1 of N, which stopped production of mature fruit before all other treatments. Early season floral bud and flower production increased with increasing amounts of

N. The two highest total N treatments produced more floral buds and flowers late in the season than the other treatments. Total fruit production was maximized at 240 kg N/ha. Differences in total fruit production due to frequency of N application resulted at the highest total N level. Red fruit production tended to be maximized with total seasonal applied N levels of 240 kg.ha-1 and below, although weekly applications of N reduced production. Total seed yield was a function of red fruit production. Pure-live seed (PLS) production was a function of total seed production. Nitrogen use efficiency (NUE) for red fruit production also decreased with N rates >240 kg.ha-1, but PLS yield and NUE decreased in a near-linear fashion as the amount of total seasonal applied N increased, regardless of application frequency. Season average NO3-N (AVE NO3-N) values >4500 mg.kg-1 had total seed and PLS yields less than those treatments <4000 mg.kg-1. Six-day germination percentage was reduced with weekly N applications of 14 kg.ha-1. Seed mass was reduced with weekly N applications of 28 kg.ha-1. Final germination percent, seedling root length and weight, and field emergence were unaffected by any of the N tre. Journal of the American Society for Horticultural Science. Mar 1990. v. 115 (2). p. 245-251. Includes references. (NAL Call No.: DNAL 81 SO12).

1471

Phytophthora root rot and irrigation schedule influence growth and phenology of processing tomatoes.
JOSHB. Ristaino, J.B. Duniway, J.M.; Marois, J.J. Alexandria, Va. : The Society. Processing tomatoes (Lycopersicon esculentum Mill.) grown in field plots with soil infested or not infested with Phytophthora parasitica Dastur. were furrow-irrigated for 4 to 8 hr every 14 days (normal) or 28 days (less frequent) or with alternating 4- to 8-hr and 24-hr irrigations every 14 days (prolonged). Disease developed more rapidly and symptom severity was significantly greater on shoots and roots of plants that received prolonged irrigations. Disease symptoms on roots progressed more rapidly and were observed earlier than those on shoots in plants given prolonged or normal irrigation. Severe disease during early vegetative and reproductive growth caused significant reductions in total plant, leaf, and fruit dry matter and in the numbers of flowers and fruit in plants receiving either prolonged or normal irrigation. Diseased plants given prolonged irrigation also partitioned less total dry matter into leaves and fruit and more into stems than noninoculated plants. Less frequent irrigation of infested plots caused a delay in disease onset and reduced the impact of disease on numbers of flowers, fruit, and dry matter accumulation. Phytophthora-induced water stress during critical stages of crop development apparently can have major impacts on plant growth, phenology, and yield in processing tomato. Journal of the American Society for Horticultural Science. July 1989. v. 114 (4). p. 556-561. Includes references. (NAL Call No.: DNAL 81 SO12).

1472

Plastic mulches and plant growing tunnels and some of their effects on temperature control, water conservation and yields of peppers in Arizona and upstate New York.
Pratt, A.J. Kohm, P.C.; Wien, H.C. Peoria, Ill. : National Agricultural Plastics Association. Proceedings of the ... National Agricultural Plastics Congress. 1981. (16th). p. 66-78. ill. Includes references. (NAL Call No.: DNAL 309.9 N216).

1473

Root growth and water status of trickle-irrigated cucumber and tomato.
JOSHB. Randall, H.C. Locascio, S.J. Alexandria, Va. : The Society. Two trickle irrigation experiments were conducted during two successive years with cucumber (Cucumis sativus L.) and tomato (Lycopersicon esculentum Mill.) grown on a coarse-textured soil in ground beds in a greenhouse. Several trickle irrigation design characteristics (emitter spacings of 15, 30, and 45 cm and one or two laterals per crop row) and water management variables (2 or 8 liters/hr per emitter water application rates and water quantities equivalent to 0.25- and 0.50-times pan evaporation) were examined for their effect on soil water content, root distribution, and plant water status. Water application rates did not influence root density distributions or plant water status; however, the 8 liters.hr-1 water application rate resulted in higher water content in the top 20 cm of soil than the lower application rate. The higher water quantity resulted in higher soil water content, higher root density, and improved plant water status than with the lower quantity. Mature plants had root systems that were well-adapted to the different soil water distributions. Only the amount of water applied influenced the water status of mature cucumber plants and cucumber fruit yields. Journal of the American Society for Horticultural Science. Nov 1988. v. 113 (6). p. 830-835. Includes references. (NAL Call No.: DNAL 81 SO12).

1474

Tensiometer control and fertigation of micro irrigated tomatoes.
Clark, G.A. Haman, D.Z.; Hanlon, E.A.; Hochmuth, G.J. St. Joseph, Mich. : The Society. American Society of Agricultural Engineers (Microfiche collection). Paper presented at the 1987 Winter Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. 1987. (fiche no. 87-2520). 17 p. Includes references. (NAL Call No.: DNAL FICHE S-72).

1475

Water quantity and time of N and K application for trickle-irrigated tomatoes.
JOSHB. Locascio, S.J. Olson, S.M.; Rhoads, F.M. Alexandria, Va. : The Society. Tomatoes (Lycopersicon esculentum Mill.) were grown during two seasons at two locations on fine sands and fine sandy loam soils to study the influence of water quantity, frequency of water application, and timing of N and K application for polyethylene-mulched, trickle-irrigated fresh-market tomatoes. Water quantities were 0.50 and 1.0 times pan evaporation applied one or three times daily. Nitrogen and K were applied 100% preplant or 40% applied preplant and 60% applied with trickle irrigation. Higher tomato leaf tissue N and K concentrations in one of the two seasons and higher fruit yields were obtained with 0.5 than with 1.0 time pan water evaporation on a fine sand at Gainesville, Fla. On a fine sandy loam soil at Quincy, fruit yields were higher in a relatively dry season with the higher water quantity and not influenced by the water quantity applied in the second relatively wet season. The number of daily water applications (one vs. three) at both locations had no effect on N and K uptake or fruit yields. Time of N and K applications had no effect on early yields, but total yields were higher with split than all preplant-applied N and K on the fine sandy soil. Split applications of fertilizer resulted in greater yields of extra-large fruit at mid-season and of extra large fruit at late harvest than all preplant-applied fertilizer. On the fine sandy loam soil, time of fertilizer application had no effect on yield. Journal of the American Society for Horticultural Science. Mar 1989. v. 114 (2). p. 265-268. Includes references. (NAL Call No.: DNAL 81 SO12).

1476

Yield and plant nutrient content of vegetables trickle-irrigated with municipal wastewater.
HJHSA. Neilsen, G.H. Stevenson, D.S.; Fitzpatrick, J.J.; Brownlee, C.H. Alexandria, Va. : American Society for Horticultural Science. HortScience. Apr 1989. v. 24 (2). p. 249-252. Includes references. (NAL Call No.: DNAL SB1.H6).

1477

Yield and quality of processing tomatoes in response to irrigation rate and schedule.
JOSHB. Sanders, D.C. Howell, T.A.; Hile, M.M.S.; Hodges, L.; Meek, D.; Phene, C.J. Alexandria, Va. : The Society. Field studies were conducted on a Typic Xerorthents Entiosols soil (Hanford sandy loam) to determine the response of two cultivars of processing tomatoes (Lycopersicon esculentum Mill.) to trickle irrigation applied at three percentages of evapotranspiration (ET) to either the top of the plant row or between the beds using a traveling irrigation system. Irrigation was terminated when fruits were either 30% or 70% red 14 or 7 days before harvest). Yields of red tomatoes and total tomatoes increased with increasing trickle irrigation water. The concentrations of soluble solids (SSC) and total solids (TS) and pH decreased with increasing trickle irrigation rates, while color, fruit size, and acidity increased, as did the yield of SSC and TS per hectare. Placement of trickle irrigation on the plant row was more favorable than placement in the furrow between the beds for yield and quality characteristics. Trickle irrigation to 70% ET terminated 7 days before harvest produced responses similar to conventional furrow irrigation. Although statistically these treatments could not he compared directly to conventional furrow, all traveling trickle irrigation rates were superior in water use efficiency to that of the conventional furrow irrigation. Trickle irrigation rates of 35% ET, 70% ET, and 105% ET did not differ in water use efficiency. Chemical names used: 2(a-naphthoxy)- N,N-diethyl propionamide (napropamide); S-propyl butylethiocarbamate pebulate). Journal of the American Society for Horticultural Science. Nov 1989. v. 114 (6). p. 904-908. Includes references. (NAL Call No.: DNAL 81 SO12).

1478

Yield of successively cropped polyethylene-mulched vegetables as affected by irrigation method and fertilization management.
JOSHB. Clough, G.H. Locascio, DS.J.; Olson, S.M. Alexandria, Va. : The Society. Broccoli (Brassica oleracea L. var. italica), followed by tomato (Lycopersicon esculentum Mill.) or squash (Cucurbita pepo L. var. melopepo), and then broccoli were produced in succession re-using the same polyethylene-mulched beds at two locations with different soil types. First-crop broccoli yield was earlier and greater with drip than with overhead irrigation and increased as N-K rate increased from 135-202 to 270-404 kg.ha-1. On a fine sandy soil, yields of second and third crops produced with residual or concurrent fertilization increased with an increase in N-K rate. On a loamy fine sandy soil, yields also increased as the rate of residual N-K increased; yields of second and third crops did not respond to rate of concurrently applied N-K, but were higher with concurrent than with residual fertilization, except total tomato yields were similar with either application time. With drip irrigation and concurrent weekly fertigation, yields equalled or exceeded those obtained with preplant fertilization and overhead irrigation. Journal of the American Society for Horticultural Science. Nov 1990. v. 115 (6). p. 884-887. Includes references. (NAL Call No.: DNAL 81 SO12).

1479

Yield of trickle-irrigated tomatoes as affected by time of N and K application.
JOSHB. Dangler, J.M. Locascio, S.J. Alexandria, Va. : The Society. Tomatoes (Lycopersicon esculentum Mill.) were grown on polyethylene-mulched beds of an Arredondo fine sand during two seasons to evaluate the effects of trickle-applied N and/or K, percentages of trickle-applied N and K (50%, 75%, and 100%), and schedules of N and K application on fruit yield, and leaf and shoot N and K concentrations. The daily irrigation requirement, calculated at 47% of the water evaporated from a U.S. Weather Service Class A pan (Epan), was met by the application of 4.6 mm to 7.2 mm water/day. Fertilizer was injected weekly in a variable (2% to 12.5% of the total amount weekly) or constant (8.3% of the total amount weekly) schedule during the first 12 weeks of each season. Trickle-applied nutrients and trickle-applied percentage of nutrients interacted in their effects on early, midseason, and total marketable fruit yields. When N + K and N were trickle-applied, the mean early total marketable fruit yield decreased linearly from 25.3 t.ha-1 to 16.3 t.ha-1 as the trickle-applied percentage of nutrients increased from 50% to 100%; but when K was trickle-applied (100% preplant-applied N), yields were not affected by the trickle-applied percentage (mean 26.3 t.ha-1). The weekly schedule of N and K injection had no effect on fruit yield or other characteristics. Higher leaf N and K concentrations early in the season were obtained when the respective nutrient was 50% to 100% preplant-applied than when the respective nutrient was 75% to 100% trickle-applied; but late in the season, higher concentrations were obtained when the respective nutrient was trickle-applied. Higher yields, however, were associated with higher early season leaf N concentrations rather than with higher late-season leaf N or K concentrations. Journal of the American Society for Horticultural Science. July 1990. v. 115 (4). p. 585-589. Includes references. (NAL Call No.: DNAL 81 S012).

1480

Capsicum-production, technology, chemistry, and quality. Part I: History, botany, cultivation, and primary processing.
CRFND. Govindarajan, V.S. Boca Raton, Fla. : CRC Press. Abstract: A comprehensive review summarizes and discusses historical, botanical, cultivation, and processing aspects of Capsicum spices. Critical considerations are given to the processing and production of various forms, processed seasonings, and concentrated oleoresins. These spices vary from chili to paprika and bell peppers. Botanical classification specifics and identification characteristics are discussed. Attention also is given to cultivation in India and other countries, primary processing techniques, crop improvements and breeding, physical structure, and chemical and nutrient composition. Microbiological and insect control and packaging and storage integrity are discussed. (wz). CRC critical reviews in food science and nutrition. 1985. v. 22 (2). p. 109-176. ill., charts. Includes 211 references. (NAL Call No.: DNAL TP368.C7).

1481

Chemical peeling of tomatoes.
College Station, Tex. : Texas Agricultural Experiment Station, 1965. Caption title. 4 p. : ill. ; 28 cm. Bibliography: p. 4 . (NAL Call No.: DNAL 100 T31S (1) no.1046).

1482

Impact parameters of spherical viscoelastic objects and tomatoes.
TAAEA. Lichtensteiger, M.J. Holmes, R.G.; Hamdy, M.Y.; Blaisdell, J.L. St. Joseph, Mich. : American Society of Agricultural Engineers. Transactions of the ASAE. Mar/Apr 1988. v. 31 (2). p. 596-602. ill. Includes references. (NAL Call No.: DNAL 290.9 AM32T).

1483

An analytical method for residues of imazalil in tomatoes and bell peppers after postharvest application and storage.
JAFCAU. King, J.R. Latham, W.G.H.; Spalding, D.H. Washington, D.C. : American Chemical Society. Journal of agricultural and food chemistry. May/June 1988. v. 36 (3). p. 520-523. Includes references. (NAL Call No.: DNAL 381 J8223).

1484

Commodity treatments: responses of tomatoes and green bell peppers to fumigation with methyl bromide or ethylene dibromde (Chemical control of Mediterranean fruit fly, Ceratitis capitata, storage decay).
Lipton, W.J. Tebbets, J.S.; Spitler, G.H.; Hartsell, P.L. Washington, D.C., The Department. Marketing research report - U.S. Department of Agriculture. June 1982. June 1982. (1125). 8 p. 17 ref. (NAL Call No.: 1 AG84MR).

1485

Harvesting, packaging, storage and shipping of greenhouse vegetables.
Schales, F.D. Honolulu, Hawaii, USA : International Center for Special Studies, c1985. Hydroponics worldwide : state of the art in soilless crop production / Adam J. Savage, editor. p. 70-76. ill. Includes references. (NAL Call No.: DNAL SB126.5.H94).

1486

Inhibition of alternaria rot (Alternaria alternata) of tomatoes and bell peppers by postharvest treatment with CGA-64251 or Imazalil.
Spalding, D.H. King, J.R. s.l., The Society. Proceedings of the ... annual meeting of the Florida State Horticultural Society. 1980 (pub 1981). v. 93. p. 307-308. 5 ref. (NAL Call No.: 81 F66).

1487

Modeling of color development of tomatoes in modified atmosphere storage.
TAAEA. Yang, C.C. Chinnan, M.S. St. Joseph, Mich. : The Society. Transactions of the ASAE - American Society of Agricultural Engineers. Mar/Apr 1987. v. 30 (2). p. 548-553. ill. Includes references. (NAL Call No.: DNAL 290.9 AM32T).

1488

Pathogenicity, growth, and sporulation of Mucor mucedo and Botrytis cinerea in cold or CA storage.
HJHSA. Reyes, A.A. Alexandria, Va. : American Society for Horticultural Science. HortScience. May 1990. v. 25 (5). p. 549-552. ill. Includes references. (NAL Call No.: DNAL SB1.H6).

1489

Tomato fruit rot infection cycle in a fresh market packing operation (Rhizopus stolonifer, Mucor hiemalis, Geotrichum candidum, Florida).
Sonoda, R.M. Hayslip, N.C.; Stoffella, P.J. S.l., The Society. Proceedings of the ... annual meeting of the Florida State Horticultural Society. 1981 (pub. 1982). v. 94. p. 281-282. Includes 6 ref. (NAL Call No.: 81 F66).

1490

Tomato fruit temperature before chilling influences ripening after chilling.
HJHSA. Saltveit, M.E. Jr. Cabrera, R.M. Alexandria, Va. : American Society for Horticultural Science. HortScience. June 1987. v. 22 (3). p. 452-454. Includes references. (NAL Call No.: DNAL SB1.H6).

1491

Ultrastructural changes associated with chilling injury in mature-green tomato fruit.
JOSHB. Marangoni, A.G. Smith, A.K.; Yada, R.Y.; Stanley, D.W. Alexandria, Va. : The Society. The effect of low temperature on cell ultrastructure was investigated in chilling-sensitive and chilling-resistant tomato fruit (Lycopersicon esculentum Mill.) Damage to the chilling-sensitive cultivar included microvesiculation of the endoplasmic reticulum and loss of ribosomes, chloroplast, and mitochondrial swelling; loss of starch granules; disorganization of the internal lamellae of chloroplasts; grana unstacking, as well as plastoglobuli and tonoplast degradation. Only a slight disorganization of the internal chloroplast lamellae was evident in the resistant species after 7 days at 5C. The primary site of damage appeared to be the chloroplast in both chilling-sensitive and -resistant species. The ultrastructural damage observed could be explained in terms of membrane disruption. Journal of the American Society for Horticultural Science. Nov 1989. v. 114 (6). p. 958-962. ill. Includes references. (NAL Call No.: DNAL 81 SO12).

1492

Are B.T.K. plants really safe to eat?.
Goldburg, R.J. NY, NY; Tjaden, G. New York, N.Y. : Nature Publishing Company. Bio/technology. Nov 1990. v. 8 (11). p. 1011-1015. Includes references. (NAL Call No.: DNAL QH442.B5).

1493

Poisoned peaches, toxic tomatoes: reckoning pesticide risks.
Blume, E. Washington, D.C. : Center for Science in the Public Interest. Abstract: A brief commentary citing a much-publicized 1987 report of the US National Academy of Sciences and studies performed by the independent Natural Resources Defense Council (NRDC) discusses the potential carcinogenic risks caused by pesticide residue contamination of produce. It is noted that NRDC finds that EPA has set tolerances too high, and that it cannot be assumed that low levels are safe when a pesticide may cause cancer. Consumer strategies for selecting and cleaning produce to minimize risk are included. The selection of "organic" pesticide-free produce also is recommended. Nutrition action health letter. Oct 1987. v. 14 (8). p. 8-9. ill. Includes 1 references. (NAL Call No.: DNAL TX341.N98).

1494

Behavior of parathion in tomatoes processed into juice and ketchup.
JPFCD2. Muhammad, M.A. Kawar, N.S. New York, N.Y. : Marcel Dekker. Journal of environmental science and health. Part B. Pesticides, food contaminants, and agricultural wastes. 1985. v. 20 (5). p. 499-510. Includes references. (NAL Call No.: DNAL TD172.J61).

1495

Relation between resistance of tomato fruit to infiltration by Erwinia carotovora subsp. carotovora and bacterial soft rot.
PLDIDE. Bartz, J.A. St. Paul, Minn. : American Phytopathological Society. Plant disease. Feb 1991. v. 75 (2). p. 152-155. Includes references. (NAL Call No.: DNAL 1.9 P69P).

1496

Application of diazinon to greenhouse tomatoes: vegetable leaf miner control and residues in foliage and fruits.
JEENAI. Lindquist, R.K. Krueger, H.R.; Mason, J.F.; Spadafora, R.R. College Park, Md. : Entomological Society of America. Journal of economic entomology. Aug 1973. v. 66 (4). p. 1001-1002. Includes references. (NAL Call No.: DNAL 421 J822).

1497

Comparison of gas and liquid chromatography for determination of anilazine in potatoes and tomatoes.
Lawrence, J.F. Panopio, L.G. Arlington, Va., The Association. Journal of the Association of Offical Analytical Chemists. Nov 1980. v. 63 (6). p. 1300-1303. ill. 9 ref. (NAL Call No.: 381 AS7).

1498

Disorders in tomato shipments to the New York market, 1972-1984.
PLDRA. Ceponis, M.J. Cappellini, R.A.; Lightner, G.W. St. Paul, Minn. : American Phytopathological Society. Plant disease. Mar 1986. v. 70 (3). p. 261-265. Includes 6 references. (NAL Call No.: DNAL 1.9 P69P).

1499

Gas chromatographic determination of fenvalerate insecticide residues in processed tomato products and by-products.
JANCA2. Spittler, T.D. Argauer, R.J.; Lisk, D.J.; Mumma, R.O.; Winnett, G.; Ferro, D.N. Arlington, Va. : The Association. Journal of the Association of Offical Analytical Chemists. July/Aug 1984. v. 67 (4). p. 824-826. Includes 7 references. (NAL Call No.: DNAL 381 AS7).

1500

Gas-liquid chromatographic method for determining oxamyl in peppers, tomatoes, and cucumbers.
Greenberg, R.S. Arlington, Va., The Association. Journal of the Association of Offical Analytical Chemists. Sept 1981. v. 64 (5). p. 1216-1220. ill. 8 ref. (NAL Call No.: 381 AS7).

1501

Gas-liquid chromatographic studies on residues of endosulfan on chilli fruits (Capsicum annuum).
Pokharkar, D.S. Dethe, M.D. New York, Marcel Dekker. Journal of environmental science and health. Part B: Pesticides, food contaminants, and agricultural wastes. 1981. v. B16 (4). p. 439-451. ill. Bibliography p. 450-451. (NAL Call No.: TD172.J61).

1502

Metabiosis and pH on moldy fresh tomatoes (Fungal pathogens).
Mundt, J.O. Norman, J.M. Ames, Iowa, International Association of Milk, Food, and Evironmental Sanitarians. Journal of food protection. July 1982. v. 45 (9). p. 829-832. 19 ref. (NAL Call No.: 44.8 J824).

1503

Mycotoxin production by Alternaria species grown on apples, tomatoes, and blueberries (Storage diseases, food contamination).
Stinson, E.E. AR-ERRC. Bills, D.D.; Osman, S.F.; Siciliano, J.; Ceponis, M.J.; Heisler, E.G. Washington, D.C., American Chemical Society. Journal of agricultural and food chemistry. Sept/Oct 1980. v. 28 (5). p. 960-963. 25 ref. (NAL Call No.: 381 J8223).

1504

Mycotoxin production in whole tomatoes, apples, oranges and lemons (Alternaria molds).
Stinson, E.E. Osman, S.F.; Heisler, E.G.; Siciliano, J.; Bills, D.D. Washington, D.C., American Chemical Society. Journal of agricultural and food chemistry. July/Aug 1981. v. 29 (4). p. 790-792. 8 ref. (NAL Call No.: 381 J8223).

1505

Potential for postharvest disease in tomato fruit infiltrated with chlorinated water.
PLDIDE. Bartz, J.A. St. Paul, Minn. : American Phytopathological Society. Plant disease. Jan 1988. v. 72 (1). p. 9-13. Includes references. (NAL Call No.: DNAL 1.9 P69P).

1506

Residues of dimethioate and methomyl on tomato and cabbage in relation to their effect on quality-related properties.
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Newsome, W.H. Shields, J.B. Washington, D.C., American Chemical Society. Journal of agricultural and food chemistry. July/Aug 1980. v. 28 (4). p. 722-724. 5 ref. (NAL Call No.: 381 J8223).

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Moini, S. O'Brien, M.; Chen, P. St. Joseph, Mich., The Society. Transactions of the ASAE - American Society of Agricultural Engineers. July/Aug 1980. v. 23 (4). p. 1062-1064. ill. 4 ref. (NAL Call No.: 290.9 AM32T).

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Impact of feeding by tomato fruitworm, Heliothis zea (Boddie) (Lepidoptera: Noctuidae), and beet armyworm, Spodoptera exigua (Hubner) (Lepidoptera: Noctuidae), on processing tomato fruit quality.
JEENAI. Zalom, F.G. Wilson, L.T.; Hoffmann, M.P. College Park, Md. : Entomological Society of America. Journal of economic entomology. June 1986. v. 79 (3). p. 822-826. Includes references. (NAL Call No.: DNAL 421 J822).

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Pathogenicity, growth, and sporulation of Mucor mucedo and Botrytis cinerea in cold or CA storage.
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Yield and quality of processing tomatoes in response to irrigation rate and schedule.
JOSHB. Sanders, D.C. Howell, T.A.; Hile, M.M.S.; Hodges, L.; Meek, D.; Phene, C.J. Alexandria, Va. : The Society. Field studies were conducted on a Typic Xerorthents Entiosols soil (Hanford sandy loam) to determine the response of two cultivars of processing tomatoes (Lycopersicon esculentum Mill.) to trickle irrigation applied at three percentages of evapotranspiration (ET) to either the top of the plant row or between the beds using a traveling irrigation system. Irrigation was terminated when fruits were either 30% or 70% red 14 or 7 days before harvest). Yields of red tomatoes and total tomatoes increased with increasing trickle irrigation water. The concentrations of soluble solids (SSC) and total solids (TS) and pH decreased with increasing trickle irrigation rates, while color, fruit size, and acidity increased, as did the yield of SSC and TS per hectare. Placement of trickle irrigation on the plant row was more favorable than placement in the furrow between the beds for yield and quality characteristics. Trickle irrigation to 70% ET terminated 7 days before harvest produced responses similar to conventional furrow irrigation. Although statistically these treatments could not he compared directly to conventional furrow, all traveling trickle irrigation rates were superior in water use efficiency to that of the conventional furrow irrigation. Trickle irrigation rates of 35% ET, 70% ET, and 105% ET did not differ in water use efficiency. Chemical names used: 2(a-naphthoxy)- N,N-diethyl propionamide (napropamide); S-propyl butylethiocarbamate pebulate). Journal of the American Society for Horticultural Science. Nov 1989. v. 114 (6). p. 904-908. Includes references. (NAL Call No.: DNAL 81 SO12).

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JOSHB. Ghate, S.R. Chinnan, M.S. Alexandria, Va. : The Society. Journal of the American Society for Horticultural Science. July 1987. v. 112 (4). p. 645-651. Includes references. (NAL Call No.: DNAL 81 SO12).

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McCall, Eugene C. Scott, Geoffrey I.; Hurley, Janet M. Clemson, SC : South Carolina Water Resources Research Institute, Clemson University, 1988? . Cover title: A comparison of agricultural nonpoint source runoff from no-till and conventional till vegetable crop test plots.~ "March 15, 1988."--T.p.~ "June 1987."--Cover.~ Submitted to United States Dept. of Interior, U.S. Geological Survey.~ "Technical completion report, G1251-07."~ "Period of investigation: 3/1/86-4/30/87."~ "PB 90-173741"--Stamped on cover.~ "Project agreement no. 14-08-0001-G1251.". v, 51 p. : ill., maps ; 28 cm. Bibliography: p. 48-51. (NAL Call No.: DNAL TD424.5.M33).

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Effect of gaseous hydrogen chloride on seed germination and early development of seedlings (Tomatoes, barley, injury, air pollution).
Granett, A.L. Taylor, D.C. Alexandria, Va., The Society. Journal of the American Society for Horticultural Science. July 1980. v. 105 (4). p. 548-550. 11 ref. (NAL Call No.: 81 SD12).

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Effect of simulated acid rain on growth and yield of Valencia orange, Floradade tomato and slash pine in Florida.
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Foliar uptake and injury from saline aerosol (Peppers, tomato, soybeans).
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Identification of injury resulting from atmospheric pollutants using reflectance measurements (Tomatoes, sulfur dioxide).
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Phytotoxicity of air pollutants. Evidence for the photodetoxification of SO2 (sulfur dioxide) but not O3 (Ozone, Pisum sativum, peas, Lycopersicon esculentum, tomatoes).
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Modeling row cover effects on microclimate and yield. I. Growth response of tomato and cucumber.
JOSHB. Wolfe, D.W. Albright, L.D.; Wyland, J. Alexandria, Va. : The Society. Several polyethylene and fabric row cover materials, and clear and black polyethylene mulch, were evaluated in a 2-year field study. For cucumbers Cucumis sativus (L.) , visible wilting and slowed growth rates of young transplants exposed to cold nights were minimized when grown under row covers that maintained high humidities and higher air and soil temperatures than in the exposed controls. Early cucumber yields were increased 2- to 6-fold by the use of covers. In contrast, tomatoes Lycopersicon esculentum (Mill.) showed no significant early yield increases, but a 63% reduction in early yield in 1985 under a perforated clear polyethylene cover. The frequency and duration of daytime air temperatures exceeding 35C had a negative impact on tomato fruit size, quality, and percentage marketable. For cucumber, the relationship between cumulative degree days (during the covered interval) and biomass, early, and total yields was linear (r2 between 0.70 and 0.82) with positive slope. Tomato yields could not be accurately predicted using this approach, but correlations were improved (for the 1985 data set) by using modified degree-day formulas incorporating a negative high-temperature factor. Journal of the American Society for Horticultural Science. July 1989. v. 114 (4). p. 562-568. Includes references. (NAL Call No.: DNAL 81 SO12).

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Path coefficient analysis of the effect of rainfall variables on the epidemiology of Phytophthora blight of pepper caused by Phytophthora capsici.
PHYTA. Bowers, J.H. Sonoda, R.M.; Mitchell, D.J. St. Paul, Minn. : American Phytopathological Society. Field plots were established in Delray Beach, FL, in the spring and fall of 1984, the spring of 1985, and the fall of 1986 to quantify disease progress and the effect of rainfall and temperature variables on Phytophthora blight of pepper caused by Phytophthora capsici. From point sources of inoculum (diseased plants), the incidence of disease was observed to spread outward over time from the central, primary foci. Disease progress was observed to be influenced by rainfall and the movement of water over the soil and plastic mulch. Path coefficient analysis was conducted to determine which rainfall variables had relatively large, direct, or indirect effects on the incidence and the rate of disease progress without the confounding influences of multicollinearity. The cumulative amount of rainfall had the largest, absolute direct effect on disease progress and was a large component of the indirect effects of the other variables in three of the trials. A cumulative rain intensity index had the largest, absolute direct effect in one trial. The cumulative number of days with rainfall, the cumulative daily average temperature, and chronological time had far lesser effects, indicating their lack of influence on disease progress. The amount of rainfall also had the largest, direct effect on the rate of disease progress when calculated between disease assessment dates and was the largest component of the indirect effects of the other variables in all four trials. The other rainfall and temperature variables had relatively less influence on the rate of disease progress. The average rates of symptom expression were 0.14, 0.14, 0.20, and 0.27 per unit per centimeter of rainfall for the four trials. Phytopathology. Dec 1990. v. 80 (12). p. 1439-1446. Includes references. (NAL Call No.: DNAL 464.8 P56).

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A predictive system for timing chemical applications to control Pseudomonas syringae pv. tomato, causal agent of bacterial speck.
PHYTAJ. Jardine, D.J. Stephens, C.T. St. Paul, Minn. : American Phytopathological Society. Phytopathology. June 1987. v. 77 (6). p. 823-827. Includes references. (NAL Call No.: DNAL 464.8 P56).

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Sequential sampling plant, yield loss components and economic thresholds for the pepper weevil, Anthonomus eugenii Cano (Coleoptera: Curculionidae).
JAUPA. Segarra-Carmona, A.E. Pantoja, A. Mayaguez : University of Puerto Rico, Agricultural Experiment Station. The Journal of agriculture of the University of Puerto Rico. July 1988. v. 72 (3). p. 375-385. Includes references. (NAL Call No.: DNAL 8 P832J).

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Systems analysis of postharvest injury to fresh market tomatoes.
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Tomato yield loss as a result of simulated Colorado potato beetle (Coleoptera: Chrysomelidae) feeding (Leptinotarsa decemlineata, model).
Cantelo, W.W.EVETB. Cantwell, G.E. College Park : Entomological Society of America. Environmental entomology. Dec 1983. v. 12 (6). p. 1646-1651. Includes references. (NAL Call No.: QL461.E532).

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Weed-crop competition: experimental designs and models for data analysis.
WEESA6. Rejmanek, M. Robinson, G.R.; Rejmankova, E. Champaign, Ill. : Weed Science Society of America. Substitutive (replacement) and partial additive experimental designs, with their underlying models, remain the two most popular techniques in weed-crop competition studies, despite condsiderable criticism of these approaches in the recent literature. We review standard designs for two-species competition experiments and demonstrate the advantages of a reciprocal yield model applied to data from an additive series experiment, using mixtures of Japanese millet and tomato. A traditional replacement series analysis failed to provide a general model of competition among these two species over several total plant densities, while an application of a reciprocal yield (inverse linear) model to the same data was successful. This technique allows evaluation of the influences of both weed on crop and crop on weed, as well as the partitioning of net competition effects into intra- and interspecific components. One Japanese millet plant was competitively equivalent to 3.7 tomato plants, as measured by effects on tomato biomass, while one tomato plant was equivalent to 0.14 Japanese millet plants, as measured by effects on millet biomass. Skewness of per plant biomass distribution is shown to be a result but not an unambiguous measure of competition. Expansion of a reciprocal yield model to mixtures of more than two species is illustrated using three species of duckweed. While some caution is recommended, the reciprocal yield analysis applied to data from appropriately designed experiments is a substantial improvement over more traditional methods. Weed science. Mar 1989. v. 37 (2). p. 276-284. Includes references. (NAL Call No.: DNAL 79.8 W41).

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Engineering economy of controlled environment for greenhouse production.
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1541,1543

Cucumbers (Cucumis sativa)
63,73,96,107,120,134,143,147,155,176,180,185,213,220,221,222,
406,504,661,698,760,856,882,890,893,942,1102,1207,1212,1223,
1317,1321,1358,1367,1368,1369,1376,1377,1412,1423,1427,1449,
1451,1473,1476,1485,1488,1500,1510,1539

Mushmelon or Cantaloupe (Cucumis melo)
71,213,732,881,882,929,1063,1102,1200,1297,1321,1328,1368,
1369,1378,1431,1451,1478

Cabbage, Broccoli, Cauliflower (Brassica)
76,92,173,205,206,232,310,502,563,664,803,1003,1023,1094,
1162,1346,1358,1366,1367,1368,1369,1403,1457,1478,1506

Potatoes (Solanum tuberosum)
57,279,413,487,497,528,553,560,565,585,633,690,760,864,915,
917,936,939,942,986,1049,1068,1300,1305,1326,1497

Solanum (other than eggplants or potatoes)
26,33,505,975,985,1206,1211,1221,1223,1225,1230,1241,1246,
1261,1262,1263,1270

Beans {Phaseolus)
21,77,92,94,203,213,220,221,222,306,310,344,414,503,512,537,
551,590,606,607,882,890,942,1007,1022,1083,1109,1161,1216,
1305,1367,1368,1369,1377,1409,1411,1488,1517

Field beans (Vicia fava)
94,225,415,630,1363,1410

Soybeans (Glycine max)
4,18,119,167,317,321,635,673,1022,1044,1099,1134,1339,1357,
1532

Peas (Pisum sativum)
68,220,221,222,1100,1124,1138,1216,1241,1367,1526,1533,1536

Pigeon peas (Cajanus cajan)
26,942,1378,1431

Lettuce (Lactuca sativa)
112,120,167,185,297,351,370,378,453,487,588,1022,1054,1238,
1269,1305,1358,1366,1367,1369,1375,1376,1416,1485,1510

Corn (Zea mays)
19,92,94,175,176,219-222,225,226,227,232,310,317,356,512,542,
679,890,942,1022,1044,1127,1210,1212,1254,1357,1366,1367,
1368,1369,1393,1410,1443,1457

Cowpeas (Vigna unguiculata)
18,563,635,893,1003,1379,1427

Tobacco (Nicotiana tabacum)
18,290,292,320,413,635,709,888,925,971,996,1010,1049,1379

Sweet potatoes (Cpomaea batatas)
18,167,635,1379

Beets (Beta vulgaris)
76,112,134,409,732,929,1023,1087,1103,1322,1356,1416,1529

Carrots (Daucus carroti)
77,110,220,221,222,226,306,323,356,363,373,404,418,487,638,
658,671,804,925,1111,1152,1163,1194,1216,1239,1244,1305,1367,
1369,1409,1488,1517

Onions (Allium cepa)
39,110,134,213,220,221,222,226,323,356,363,373,404,418,638,
730,791,927,1111,1148,1152,1163,1194,1199,1239,1296,1350,
1367,1369,1377,1476,1488,1517

Pesticides
188,195,219,220,221,222,231,263,362,366,371,406,409,410,429,
446,447,456,474,487,508,519,553,560,573,574,611,652,723,724,
771,796,819,875,876,905,913,955,961,969,973,981,1050,1051,
1069,1070,1074,1091,1092,1093,1101,1118,1130,1136,1181,1200,
1241,1255,1289-1372,1483,1484,1486,1493,1494,1495,1500,1501,
1524,1542

Herbicides
6,11,34,37,63,107,113,121,135,146,159,196,207,212,243,254,
269,275,287,299,673,862,1050,1051,1059-1063,1066,1085,1095,
1102,1103,1104,1113-1116,1119-1123,1125,1126,1134,1141,1148,
1150,1154,1156,1157,1159,1165,1193,1195-1201,1206,1207,1208,
1209,1212,1214,1215,1216,1220,1222-1237,1240,1242,1243,1246-
1254,1261-1265,1267,1268,1270-1276,1278,1282,1283,1284,1289,
1304,1309,1311,1312,1313,1315,1321-1325,1330-1335,1339,1341,
1344,1350,1351,1352,1357-1361,1374,1417,1428,1451

Fungicides
43,101,109,429,464,523,553,721,722,724,728,737-741,743,749-
755,757-769,771,773,780,781,795,810-818,822,823,825,831-850,
858,867,870,886,888,891,892,893,902,906,907,908,909,911,915,
917,918,919,934,946,948,949,950,951,955,978,979,980,1070,
1139,1191,1345,1427,1548

Insecticides
9,10,122,125,217,239,278,453,455,459,464,465,468,469,475,476,
477,478,488,496,498,499,500,522,523,532,538,553,560,578,579,
584,600,601,602,614,708,710,724,1003,1014,1303,1316,1326,
1349,1499,1513

Nematicides
37,67,101,366,639,644,659,665,1319

IPM
10,11,192,194,198,199,268,273,437,438,439,444,457,467,489,
534,536,545,548,549,550,555,556,561,577,597,777,861,862,958,
1014,1202,1209,1244,1245,1430

Growth regulators
22,24,27,48,53,54,55,57,58,61,62,74,75,88,89,90,104,118,124,
128,148,173,177,181,202,203,230,248,326,338,341,346,350,354,
366,368,386,401,526,995,1053,1054,1055,1111,1336,1426,1512

Damage, Injuries or Stress continued:
894,899,972,1031,1032,1033,1034,1036-1043,1048,1052,1058,
1061,1064,1065,1066,1071,1072,1073,1075-1079,1082,1083,1084,
1086,1089,1096-1101,1107-1110,1124,1132,1133,1137,1144,1146,
1147,1151,1158,1164,1165,1166,1168,1169,1173,1174,1176,1177,
1185,1187,1189,1192,1202,1220,1243,1320,1325,1426,1433-1436,
1452,1454,1455,1456,1490,1491,1498,1516,1521,1525,1527,1530,
1533,1534,1537,1538,1540,1544,1545

Production
7-14,18-234,236,240,246,266,274,290,336,339,340,341,345,346,
348,350,353,363,367,371,383,387,390,393,394,395,401,402,411,
419,423,424,426,427,431,432,434,440,449,450,452,455,504,527,
528,604,609,610,613,634,635,638,649,663,664,683,701,718,807,
887,896,939,953,1059,1062,1085,1165,1199,1204,1210,1220,1228,
1236,1240,1282,1285,1286,1336,1375,1377,1378,1382,1384,1386,
1388,1389,1391,1393-1416,1418-1421,1423-1426,1428-1431,1443,
1444,1446-1459,1461-1464,1466-1473,1480,1495,1512,1514,1526-
1529,1539,1543,1547

Irrigation
3,11,19,45,51,64,70,81,96,97,100,133,139,149,162,180,189,210,
213-216,312,316,381,504,563,658,707,721,722,802,848,849,850,
857,877,918,919,951,1003-1032,1080,1210,1245,1377,1392,1396,
1401,1404,1405,1406,1412,1413,1414,1443,1465-1479,1518